Section 2

Regulation
Statement of purpose

IMPORTANT: Read instructions on back of last page (Certification Page) before completing this form. Failure to comply with instructions may cause disapproval of proposed Regulations

STATE OF CONNECTICUT
REGULATION
OF

Department of Public Health
NAME OF AGENCY

Concerning

Public Drinking Water Quality Standards
SUBJECT MATTER OF REGULATION

Section 1. Section 19-13-B102(a) of the Regulations of Connecticut State Agencies is amended to read as follows:

(a) **Definitions**. As used in [Section 19-13-B102] this section:

(1) "Action level" means the concentration of lead or copper in water specified in subsection (j)(6)(B) of this section which determines, in some cases, the treatment requirements contained in subsection (j)(6) of this section that a [water] system is required to complete;

(2) "Active source of supply" means all springs, streams, watercourses, brooks, rivers, lakes, ponds, wells, or underground water from which water is taken on a regular or periodic basis for water supply purposes. A number of wells drawing water from a single aquifer or more than [one] 1 surface water body or a combination of surface water and [groundwater] ground water sources connected to a common distribution system may, at the discretion of the department, be considered a single source of supply;

(3) "Annual average" means the arithmetic average of the quarterly averages of [four (4)] 4 consecutive quarters of monitoring;

(4) "Bag filters" means pressure-driven separation devices that remove particulate matter larger than 1 micrometer using an engineered porous filtration media and are typically constructed of a non-rigid, fabric filtration media housed in a pressure vessel in which the direction of flow is from the inside of the bag to the outside;

(5) "Bank filtration" means a water treatment process that uses a well to recover surface water that has naturally infiltrated into ground water through a river bed or bank(s). Infiltration is typically enhanced by the hydraulic gradient imposed by a nearby pumping water supply or other well(s);

(6) "Cartridge filters" means pressure-driven separation devices that remove particulate matter larger than 1 micrometer using an engineered porous filtration media and are typically constructed as rigid or semi-rigid, self-supporting filter elements housed in pressure vessels in which flow is from the outside of the cartridge to the inside;

[(4)] (7) "CFR" means Code of Federal Regulations;

[(5)] (8) "Certified distribution system operator" means an operator who has met the education, experience, and examination requirements specified in section 25-32-11 of the Regulations of Connecticut State Agencies and has been certified by the department;

(9) "Certified operator" means an operator who has met the education, experience, and examination requirements specified in sections 25-32-7a to 25-32-14, inclusive, of the Regulations of Connecticut State Agencies and has been certified by the department;

[(6)] (10) "Certified water treatment plant operator" means an operator who has met the education, experience, and examination requirements of section 25-32-9 of the Regulations of Connecticut State Agencies and has been certified by the department;

[(7)] (11) "Coagulation" means a process using coagulant chemicals and mixing by which colloidal and suspended materials are destabilized and agglomerated into flocs;

(12) "Coliform" means a group of bacteria found in the intestines of warm-blooded animals (including humans) and found in plants, soil, air, and water;

(13) "Combined distribution system" means the interconnected distribution system consisting of the distribution systems of wholesale systems and of the consecutive systems that receive finished water;

[(8)] (14) "Community water system" or ["(CWS)"] "CWS" means a public water system that serves at least [twenty-five (25)] 25 residents;

[(9)] (15) "Complete conventional treatment" means coagulation, sedimentation or dissolved air flotation, rapid granular filtration, and disinfection unless approved otherwise by the department;

[(10)] (16) "Compliance period" means a [three (3)] 3 calendar-year period within a compliance cycle. Each compliance cycle has [three (3) three-year] 3 3-year compliance periods[. Within the first compliance cycle, the first compliance period runs from January 1, 1993 to December 31, 1995; the second from January 1, 1996 to December 31, 1998; the third from January 1, 1999 to December 31, 2001];

[(11)] (17) "Compliance cycle" means the [nine (9)] 9 calendar-year cycle during which public water systems shall monitor. Each compliance cycle consists of [three (3) three-year] 3 3-year compliance periods. The first calendar year cycle [begins] began on January 1, 1993 and [ends] ended on December 31, 2001; the second [begins] began on January 1, 2002 and [ends] ended on December 31, 2010; the third [begins] began on January 1, 2011 and ends on December 31, 2019;

[(12)] (18) "Composite correction program" or ["(CCP)"] "CCP" means a program consisting of [two (2)] 2 elements: a comprehensive performance evaluation and a comprehensive technical assistance;

[(13)] (19) "Comprehensive performance evaluation" or ["(CPE)"] "CPE" means a thorough review and analysis of a treatment plant's performance-based capabilities and associated administrative, operation and maintenance practices. It is conducted to identify factors that may be adversely

impacting a plant's capability to achieve compliance and emphasizes approaches that can be implemented without significant capital improvements. The comprehensive performance evaluation shall comprise of a written report consisting of at least the following components:

(A) Assessment of plant performance;

(B) Evaluation of major unit processes;

(C) Identification and prioritization of performance limiting factors;

(D) Assessment of the applicability of comprehensive technical assistance;

(E) Identification of improvements selected by a public water system to enhance the treatment plant's capability to achieve compliance; and

(F) A schedule of dates for the implementation of the improvements;

[(14)] (20) "Comprehensive technical assistance" means a performance improvement phase that is implemented using results from the comprehensive performance evaluation;

[(15)] (21) "Confluent growth" means a continuous bacterial growth covering the entire filtration area of a membrane filter, or a portion thereof, in which bacterial colonies are not discrete;

[(16)] (22) "Consecutive public water system" means a public water system that [purchases all of its water from one or more public water systems] receives some or all of its finished water from one or more wholesale systems. Delivery may be through a direct connection or through the distribution system of one or more consecutive systems;

[(17)] (23) "Consultation" means a telephone call, electronic mail exchange or meeting at which the public water system reports to the department the nature of the violation and the department, in turn, determines the action that shall be taken by the public water system;

[(18)] (24) "Consumer" [means one that meets the requirements of] has the same meaning as provided in section 25-32a of the Connecticut General Statutes;

[(19)] (25) "Contaminant" means any physical, chemical, biological, or radiological substance or matter in water [as in section 1401 Title XIV of the Federal Public Health Service Act];

[(20)] (26) "Conventional filtration treatment" means a series of processes including coagulation, flocculation, sedimentation or dissolved air flotation, and filtration resulting in substantial particulate removal;

[(21)] (27) "Corrosion inhibitor" means a substance capable of reducing the corrosivity of water toward metal plumbing materials, especially lead and copper, by forming a protective film on the interior surface of those materials;

(28) "Cryptosporidium" means a protozoan found in the intestines of livestock and in water contaminated by sewage or runoff containing animal waste. Human consumption of water

contaminated with Cryptosporidium can cause severe gastrointestinal illness;

[(22)] (29) "CT" or "CT CALC" means the product of the "residual disinfectant concentration" (C) in milligrams per liter [(mg/l)] determined before or at the first [customer] consumer, and the corresponding "disinfectant contact time" (T) in minutes (i.e., "C" X "T"). If a public water system applies disinfectants at more than [one] 1 point prior to the first [customer] consumer, it shall determine the CT of each disinfectant sequence before or at the first [customer] consumer to determine the total percent inactivation;

[(23) "Customer" means consumer as defined in section 25-32a of the Connecticut General Statutes;]

[(24)] (30) "Department" means Connecticut Department of Public Health;

[(25)] (31) "Diatomaceous earth filtration" means a process resulting in substantial particulate removal in which a pre-coat cake of diatomaceous earth filter media is deposited on a support membrane (septum), and while the water is filtered by passing through the cake on the septum, additional filter media known as body feed is continuously added to the feed water to maintain the permeability of the filter cake;

[(26)] (32) "Direct filtration" means a series of processes including coagulation and filtration, but excluding sedimentation, resulting in substantial particulate removal;

(33) "Direct integrity test" means a physical test applied to a membrane unit in order to identify and isolate integrity breaches (i.e., one or more leaks that could result in contamination of the filtrate);

[(27)] (34) "Disinfectant contact time" ("T" in CT calculations) means the time in minutes that it takes for water to move from the point of disinfectant application or the previous point of disinfectant residual measurement to a point before or at the point where residual disinfectant concentration ("C") is measured;

(A) Where only [one] 1 "C" is measured (single application point), "T" is the time in minutes that it takes for water to move from the point of disinfectant application to a point before or at which residual disinfectant concentration ("C") is measured;

(B) Where more than [one] 1 "C"[,] is measured (multiple application points), "T" is:

(i) [for] For the first measurement of "C", the time in minutes that it takes for water to move from the first point of disinfectant application to a point before or at the point where the first "C" is measured; and

(ii) [for] For subsequent measurements of "C", the time in minutes that it takes for water to move from the previous "C" measurement point to the "C" measurement point for which the subsequent "T" is being calculated;

(C) Disinfectant contact time in pipelines shall be calculated by dividing the internal volume of the pipe by the maximum hourly flow rate through that pipe (plug flow); and

(D) Disinfectant contact time within mixing basins, clearwells, and storage reservoirs shall be

determined by tracer studies or an equivalent demonstration;

[(28)] (35) "Disinfection" means a process which inactivates [pathogenic organisms] microbial pathogens in water by chemical oxidants or equivalent agents;

[(29)] (36) "Disinfection profile" means a summary of daily giardia lamblia inactivation through the treatment plant;

(37) "Distribution system" means any combination of pipes, tanks, pumps, etc. that delivers water from the sources or treatment facilities or storage facilities to the consumer;

[(30)] (38) "Domestic or other non-distribution system plumbing problem" means a coliform contamination problem in a public water system with more than [one] 1 service connection that is limited to the specific service connection from which the coliform-positive sample was taken;

(39) "Dose equivalent" means the product of the absorbed dose from ionizing radiation and such factors as account for differences in biological effectiveness due to the type of radiation and its distribution in the body as specified by the International Commission on Radiological Units and Measurements (ICRU);

(40) "Drinking water" means water, treated or untreated, intended for human use and consumption, including, but not limited to, drinking, bathing, showering, cooking, dishwashing and maintaining oral hygiene;

(41) "Dual sample set" means a set of 2 samples collected at the same time and same location, with 1 sample analyzed for total trihalomethanes (TTHM) and the other sample analyzed for total haloacetic acids (HAA5);

[(31)] (42) "EC medium/mug tests" means analytical tests for waterborne bacteria as specified in 40 CFR 141.21(f), as amended from time to time;

(43) "E. coli" or "Escherichia coli" means a species of fecal coliform that thrives at the body temperature of mammals. Its presence in ground water is a common indicator of fecal coliform contamination;

[(32)] (44) "Effective corrosion inhibitor residual" means a concentration sufficient to form a passivating film on the interior walls of a pipe;

[(33)] (45) "End of distribution system" means the last service connection on a dead-end water main;

[(34)] (46) "Enhanced coagulation" means the addition of sufficient coagulant for improved removal of disinfection byproduct precursors by conventional filtration treatment;

[(35)] (47) "Enhanced softening" means the improved removal of disinfection byproduct precursors by precipitative softening;

[(36)] (48) "EPA" means the United States Environmental Protection Agency;

(49) "Fecal coliform" means bacteria that grows in the colon of mammals and is transmitted through fecal material;

[(37)] (50) "Filter profile" means a graphical representation of individual filter performance, based on continuous turbidity measurements or total particle counts versus time for an entire filter run, from startup to backwash inclusively, that includes an assessment of filter performance while another filter is being backwashed;

[(38)] (51) "Filtration" means a process for removing particulate matter from water by passage through porous media;

(52) "Finished water" means water that is introduced into the distribution system of a public water system and is intended for distribution and consumption without further treatment, except as treatment necessary to maintain water quality in the distribution system (e.g., booster disinfection, addition of corrosion control chemicals);

[(39)] (53) "[First draw] First-draw sample" means a [one-liter] 1-liter sample of tap water, collected in accordance with [subsection(e)(8)(B)(ii)] subsection (e)(8)(B)(ii) of this section, that has been standing in plumbing pipes at least [six (6)] 6 hours and is collected without flushing the tap;

[(40)] (54) "Flocculation" means a process to enhance agglomeration or collection of smaller floc particles into larger, more easily settleable particles through gentle stirring by hydraulic or mechanical means;

(55) "Flowing stream" means a course of running water flowing in a definite channel;

[(41)] (56) "GAC10" means granular activated carbon filter beds with an empty-bed contact time of 10 minutes based on average daily flow and a carbon reactivation frequency of every 180 days, except that the reactivation frequency for GAC10 used as a best available technology for compliance with the MCLs under subsection (e)(11)(B)(i) of this section is 120 days;

(57) "GAC20" means granular activated carbon filter beds with an empty-bed contact time of 20 minutes based on average daily flow and a carbon reactivation frequency of every 240 days;

(58) "Gross alpha particle activity" means the total radioactivity due to alpha particle emission as inferred from measurements on a dry sample;

(59) "Gross beta particle activity" means the total radioactivity due to beta particle emissions as inferred from measurements on a dry sample;

(60) "Ground water" means the supply of source water under the earth's surface that is not under the influence of surface water;

(61) "Ground water system" means a public water system that provides ground water, in whole or part, directly to consumers but does not include a public water system that combines ground water with surface water prior to treatment or ground water under the direct influence of surface water;

[(42)] (62) "[Groundwater] Ground water under the direct influence of surface water" or

["(GWUDI)"] "GWUDI" means any water beneath the surface of the ground with either a significant occurrence of insects or other macroorganisms, algae, or large-diameter pathogens such as giardia lamblia or [cryptosporidium] Cryptosporidium, or significant and relatively rapid shifts in water characteristics such as turbidity, temperature, conductivity, or pH which closely correlate to climatological or surface water conditions. [Direct influence shall be determined for individual sources in accordance with criteria established by the department.] The department determination of direct influence may be based on site-specific measurements of water quality [and/or] or documentation of well construction characteristics and geology [with], or both, which may include a field evaluation [according to "Department of Health Services criteria-determination of groundwater under the direct influence of surface water"];

[(43)] (63) "Haloacetic acid five" or ["(HAA5)"] "HAA5" means the sum of the concentrations in milligrams per liter of the haloacetic acid compounds (monochloroacetic acid, dichloroacetic acid, trichloroacetic acid, monobromoacetic acid, and dibromoacetic acid), rounded to [two (2)] 2 significant figures;

(64) "Hydrogeologic sensitivity assessment" or "HSA" means the department's act of making a determination of whether a ground water system obtains water from hydrogeologically sensitive settings taking into account information regarding the specific aquifer from which the system is drawing water, well construction records, characterization of the hydrogeology of the source aquifer, and whether the aquifer has a hydrogeologic barrier that would prevent the vertical movement of microbial pathogens from the surface into the aquifer;

[(44)] (65) "Initial compliance period" means the first full [three-year] 3-year compliance period [which begins at least eighteen (18) months after promulgation. Initial compliance period runs] that ran from January 1, 1993 to December 31, 1995;

(66) "Lake" means a natural or man-made basin or hollow on the Earth's surface, including a reservoir, in which water collects or is stored that may or may not have a current or single direction of flow;

[(45)] (67) "Large [water] system" means a community water system or non-community water system that serves more than [fifty thousand (50,000)] 50,000 persons;

[(46)] (68) "Lead service line" means a service line made of lead that connects the water main to a building inlet and any lead pigtail, gooseneck or other fitting connected to such lead line;

[(47)] (69) "Legionella" means a genus of bacteria, some species of which have caused a type of pneumonia called legionnaires' disease;

[(48)] (70) "Local director of health" means a city, town, borough, or district director of health or [his] the director of health's authorized agent;

(71) "Locational running annual average" or "LRAA" means the average of sample analytical results for samples taken at a particular monitoring location during the previous 4 calendar quarters;

[(49)] (72) ["mg/L"] "mg/l" means milligrams per liter;

(73) "Man-made beta particles and photon emitters" means all radionuclides emitting beta particles or photons, or both, listed in Maximum Permissible Body Burdens and Maximum Concentration of Radionuclides in Air or Water for Occupational Exposure, National Bureau of Standards Handbook 69, except the daughter products of thorium-232, uranium-235 and uranium-238;

[(50)] (74) "Maximum contaminant level" or ["(MCL)"] "MCL" means the maximum permissible level of a contaminant in water that is delivered to any consumer of a public water system;

[(51)] (75) "Maximum contaminant level goal" or "MCLG" means the maximum level of a contaminant in drinking water at which no known or anticipated adverse effect on the health of persons would occur; and which allows an adequate margin of safety. Maximum contaminant level goals are non-enforceable health goals;

[(52)] (76) "Maximum residual disinfectant level" or ["(MRDL)"] "MRDL" means a level of a disinfectant added for water treatment that [may] shall not be exceeded at the consumer's tap without an unacceptable possibility of adverse health effects. MRDL is enforceable in the same manner as maximum contaminant level;

[(53)] (77) "Maximum residual disinfectant level goal" or ["(MRDLG)"] "MRDLG" means the maximum level of a disinfectant added for water treatment at which no known or anticipated adverse effect on the health of persons would occur, and which allows an adequate margin of safety. MRDLG is a non-enforceable health goal and does not reflect the benefit of the addition of the chemical for control of waterborne microbial contaminants;

[(54)] (78) "Medium-size [water] system" means a community water system or non-community water system that serves greater than [three thousand three hundred (3,300)] 3,300 and less than or equal to [fifty thousand (50,000)] 50,000 persons;

(79) "Membrane filtration" means a pressure or vacuum driven separation process in which particulate matter larger than 1 micrometer is rejected by an engineered barrier, primarily through a size-exclusion mechanism, and which has a measurable removal efficiency of a target organism that can be verified through the application of a direct integrity test. This definition includes the common membrane technologies of microfiltration, ultrafiltration, nanofiltration, and reverse osmosis;

[(55)] (80) "Method detection limit" or ["(MDL)"] "MDL" means the minimum concentration of a substance that can be measured and reported with [ninety-nine] 99 percent [(99%)] confidence that the true value is greater than [zero (0)] 0;

(81) "Microbial pathogen" means a microorganism, such as a bacteria, virus or parasite, that can cause infection and illness in humans. Microbial pathogens include, but are not limited to Echovirus, Coxsackie viruses, Hepatitis A and E, Rotavirus, Norovirus, E. coli, Salmonella species, Shigella species, and Vibrio cholerae;

(82) "Molecular Weight Cutoff" or "MWCO" means a measure of the removal characteristic of a membrane in terms of atomic weight (or mass), as opposed to pore size; typically measured in terms of Daltons;

[(56)] (83) "Near the first service connection" means at one of the [twenty] 20 percent [(20%)] of all service connections in the entire system that are nearest the water supply treatment facility, as measured by water transport time within the distribution system;

[(57)] (84) "Non-community water system" means a public water system that serves at least [twenty-five (25)] 25 persons at least [sixty (60)] 60 days out of the year and is not a community water system;

[(58)] (85) "Non-transient non-community water system" or ["(NTNC)"] "NTNC" means a public water system that is not a community system and that regularly serves at least [twenty-five (25)] 25 of the same persons over [six (6)] 6 months per year;

[(59)] (86) "Notification level" means the level of a contaminant that if exceeded shall require public notification by a public water system to its consumers;

[(60)] (87) "Optimal corrosion control treatment" means the corrosion control treatment that minimizes the lead and copper concentrations at users' taps while ensuring that the treatment does not cause the community water system or non-transient non-community water system to violate any drinking water statutes or regulations;

[(61)] (88) "Other unregulated contaminants" means contaminants that meet or exceed the department's action level or contaminant level for which the maximum contaminant goal has been proposed for drinking water by EPA;

(89) "Picocurie" or "pCi" means the quantity of radioactive material producing 2.22 nuclear transformations per minute;

[(62)] (90) "Physical parameters" means color, turbidity, [ph] pH, and odor;

(91) "Plant intake" means the works or structures at the head of a conduit through which water is diverted from a source (e.g., river or lake) into the treatment plant;

[(63)] (92) "Point of disinfectant application" [is] means the point where the disinfectant is applied and water downstream of that point is not subject to recontamination by surface water;

[(64)] (93) "Point of entry" or "entry point" means a location on an active source of supply that is after any treatment and before the entrance to the distribution system;

(94) "Practical quantification level" or "PQL" means the lowest concentration that can be reliably measured within specific limits of precision and accuracy during routine laboratory operating conditions;

(95) "Presedimentation" means a preliminary treatment process used to remove gravel, sand and other particulate material from the source water through settling before the water enters the primary clarification and filtration processes in a treatment plant;

[(65)] (96) "Public water system" or ["System"] "system" means any [water company] system supplying water to [fifteen (15)] 15 or more consumers or [twenty-five (25)] 25 or more persons,

based on the "Design Population" as defined in section 16-262m-8(a)(3) of the Regulations of Connecticut State Agencies, jointly administered by the department and the [Department of Public Utility Control] Public Utilities Regulatory Authority, daily at least [sixty] 60 days [(60)] of the year. A system is not a public water system if it meets all of the following conditions:

(A) [consists] Consists only of distribution and storage facilities;

(B) [does] Does not have any treatment facilities, other than those for non-potable use;

(C) [obtains] Obtains all of its water from, but is not owned or operated by, a public water system;

(D) [does] Does not separately bill the consumers for water use or consumption; and

(E) [is] Is not a carrier which conveys passengers in interstate commerce;

[(66) "Practical quantification level" or "(PQL)" means the lowest concentration that can be reliably measured within specific limits of precision and accuracy during routine laboratory operating conditions;]

(97) "Raw water" means water in its natural state on the surface of the earth or underground;

[(67)] (98) "Repeat compliance period" means any subsequent compliance period after the initial compliance period;

[(68)] (99) "Repeat sample" means a sample that is collected as a result of a total coliform-positive routine sample;

(100) "Reservoir" means a natural or man-made basin or hollow on the Earth's surface, including a lake, in which water collects or is stored that may or may not have a current or single direction of flow;

[(69)] (101) "Residual disinfectant concentration" or "RDC" ("C" in CT calculations) means the concentration of disinfectant measured in [mg/L] mg/l in a representative sample of water;

[(70)] (102) "Routine sample" means a sample that is collected at a location and frequency as specified in the [approved] department-approved sample siting plan;

[(71)] (103) "Sanitarian" means a person who is trained in environmental health and who is qualified to carry out educational and investigational duties in the fields of environmental health such as investigation of air, water, sewage, foodstuffs, housing and refuse by observing, sampling, testing and reporting; and who is licensed pursuant to section 20-361 of the Connecticut General Statutes;

[(72)] (104) "Sanitary survey" means [an onsite inspection of the water source, treatment, distribution system, finished water storage, pumping facilities and controls, monitoring and reporting data, system management and operation, and operator compliance with department requirements. Components of the sanitary survey may be completed as part of a staged or phased review process by the department within the established frequency] a review of a public water system by the department to evaluate the adequacy of the system, its sources and operations and the distribution

of safe drinking water;

[(73)] (105) "Second compliance period" means the second full [three-year] 3-year compliance period in the first compliance cycle. [Second] The second compliance period [runs] ran from January 1, 1996 to December 31, 1998;

[(74)] (106) "Sedimentation" means a process for removal of solids before filtration by gravity or separation;

[(75)] (107) "Self assessment" means an assessment which shall comprise a written report consisting of at least the following components:

(A) Assessment of filter performance;

(B) Development of a filter profile;

(C) Identification and prioritization of factors limiting filter performance;

(D) Assessment of the applicability of improvements;

(E) Identification of improvements selected by a public water system to enhance filtration and achieve compliance; and

(F) A schedule of dates for the implementation of the improvements;

[(76)] (108) "Service line sample" means a [one (1)] 1 liter sample of water, collected in accordance with subsection (e)(8)(B)(iii) of this section, that has been standing for at least [six (6)] 6 hours in a service line;

(109) "Significant change to disinfection practice" means one of the following changes:

(A) Changes to the point of disinfection;

(B) Changes to the disinfectant(s) used in the treatment plant;

(C) Changes to the disinfection process; or

(D) Any other modification identified by the department that has or may have a significant impact on disinfection practices or the effectiveness of such practices, or both;

[(77)] (110) "Significant deficiency" [means a violation of section 19-13-B102(j)(2) of the Regulations of Connecticut State Agencies] means any situation, practice, or condition in a public water system with respect to design, operation, maintenance, or administration that the department determines to be causing, or has the potential for causing, risks to health or safety of the public served by the system. Significant deficiencies shall include, but are not limited to, defects in design, operation, or maintenance, or a failure or malfunction of the sources, treatment, including violations of subsection (j)(2) of this section, storage, or distribution system that the department determines to be causing, or has the potential for causing, the introduction of fecal contamination

into the water delivered to consumers;

[(78)] (111) "Single family structure" means a building constructed as a single-family residence that is currently used as either a residence or a place of business;

[(79)] (112) "Slow sand filtration" means a process involving passage of raw water through a bed of sand at low velocity (generally less than 0.16 gallons per minute per square foot, gpm/sq. ft.) resulting in substantial particulate removal by physical and biological mechanisms;

[(80)] (113) "Small [water] system" means a community water system or non-community water system that serves [three thousand three hundred (3,300)] 3,300 persons or fewer;

[(81)] (114) "Source water" means raw water before any kind or type of treatment at the source of supply;

[(82)] (115) "Special purpose sample" means a sample that is taken to determine whether disinfection practices are sufficient following routine maintenance work on the distribution system;

[(83)] (116) "Surface water" means all water that is open to the atmosphere and subject to surface runoff;

[(84)] (117) "SUVA" means specific ultraviolet absorption at 254 nanometers (nm), an indicator of the humic content of water. 1 nm is equal to 1 billionth (10^{-9}) of a meter. It is a calculated parameter obtained by dividing a sample's ultraviolet absorption at a wavelength of 254 nm (UV254) [(in M-1)] (in m^{-1}) by its concentration of dissolved organic carbon (DOC) in [mg/L] mg/l;

[(85)] (118) "System with a single service connection" means a system that supplies drinking water to consumers via a single service line;

[(86) "Tier 1 notice" means a notice that is required when a public water system has failed to comply with requirements for any of the following:

(A) The maximum contaminant level (MCL) for total coliforms when fecal coliform or E.coli are present in the water distribution system, or when the public water system fails to test for fecal coliforms or E.coli when any repeat sample tests positive for coliform;

(B) The MCL for nitrate, nitrite, or total nitrate and nitrite, or when the public water system fails to take a confirmation sample within twenty-four (24) hours of the system's receipt of the first sample showing an exceedance of the nitrate or nitrite MCL;

(C) The maximum residual disinfectant level (MRDL) for chlorine dioxide when one or more samples taken in the distribution system the day following an exceedance of the MRDL at the entrance of the distribution system exceed the MRDL, or when the public water system does not take the required samples in the distribution system;

(D) The MCL for turbidity as specified in sections 19-13-B102(e)(7)(H)(ii) and 19-13-B102(j)(2)(D) of the Regulations of Connecticut State Agencies, where the department

determines after consultation that the violation of the MCL for turbidity combined with other site-specific information indicate that potential pathogens may have passed the point of entry to the water distribution system, or where consultation does not take place within twenty-four (24) hours after the public water system learns of the violation;

(E) The MCL for turbidity as specified in section 19-13-B102(j)(4) of the Regulations of Connecticut State Agencies, where the department determines after consultation that the violation of the MCL for turbidity combined with other site-specific information indicate that potential pathogens may have passed the point of entry to the water distribution system, or where consultation does not take place within twenty-four (24) hours after the public water system learns of the violation;

(F) Occurrence of a waterborne disease outbreak, as defined in section 19- 13-B102(a) of the Regulations of Connecticut State Agencies; or

(G) Any chemical listed in sections 19-13-B102(e)(2) to 19-13- B102(e)(4), inclusive of the Regulations of Connecticut State Agencies is found at a level that is determined in writing by the department to have serious adverse effects on human health as a result of short term exposure based on available scientific and epidemiological findings.]

[(87) "Tier 2 notice" means a notice that is required when a public water system has failed to comply with requirements for any of the following:

(A) The MCL, MRDL, or treatment technique requirements, except where a tier 1 notice is required under section 19-13-B102(a) of the Regulations of Connecticut State Agencies;

(B) Monitoring or testing procedure requirements for total coliforms, nitrate, nitrite, total nitrate and nitrite, or chlorine dioxide, except where a tier 1 notice is required under section 19-13-B102(a) of the Regulations of Connecticut State Agencies; or

(C) The terms and conditions of any variance, consent order, consent agreement or exemption in place.]

[(88) "Tier 3 notice" means a notice that is required when a public water system has:

(A) Violated a monitoring requirement, except where a tier 1 notice or a tier 2 notice is required under section 19-13-B102(a) of the Regulations of Connecticut State Agencies;

(B) Violated a testing procedure requirement, except where a tier 1 notice or a tier 2 notice is required under section 19-13-B102(a) of the Regulations of Connecticut State Agencies;

(C) Operated under an administrative order, variance, or an exemption;

(D) Failed to provide the notice of the availability of unregulated contaminant monitoring results, as required under 40 CFR 141.207; or

(E) Exceeded the fluoride secondary maximum contaminant level (SMCL), as required under 40 CFR 141.208.]

[(89)] (119) "Too numerous to count" means that the total number of bacterial colonies exceeds [two hundred (200)] 200 on a [forty-seven (47)] 47 mm diameter membrane filter used for coliform detection;

[(90)] (120) "Total organic carbon" or ["(TOC)"] "TOC" means total organic carbon in [mg/L] mg/l measured using heat, oxygen, ultraviolet irradiation, chemical oxidants, or combinations of these oxidants that convert organic carbon to carbon dioxide, rounded to [two (2)] 2 significant figures;

[(91)] (121) "Total trihalomethanes" or ["(TTHM)"] "TTHM" means the sum of the concentrations in milligrams per liter of bromodichloromethane, dibromochloromethane, tribromoethane (bromoform) and trichloromethane (chloroform) rounded, to [two (2)] 2 significant figures;

[(92)] (122) "Transient non-community water system" or ["(TNC)"] "TNC" means a [noncommunity] non-community water system that does not meet the definition of a non-transient noncommunity water system;

(123) "Treatment" means the process of altering the physical, chemical, biological or radiological quality of source water for use as drinking water;

(124) "Treatment technique" means a specific treatment method required by the department to control the level of contaminants in drinking water;

(125) "Two-stage lime softening" means a process in which chemical addition and hardness precipitation occur in each of 2 distinct unit clarification processes in series prior to filtration;

[(93)] (126) "Uncovered finished water clearwell, tank or basin" means a container [that stores] used to store water that shall undergo no further treatment to reduce microbial pathogens, except residual disinfection, and is directly open to the atmosphere; [.]

[(94)] (127) "Virus" means a microorganism of fecal origin which is infectious to humans by waterborne transmission;

[(95)] (128) "Water company" [means one that meets the requirements of] has the same meaning as provided in section 25-32a of the Connecticut General Statutes;

[(96) "Water system" means all community water systems and non-transient non-community water systems;]

[(97)] (129) "Waterborne disease outbreak" means the significant occurrence of acute infectious illness, epidemiologically associated with the ingestion of water from a public water system as determined by the department;

(130) "Wholesale system" means a public water system that treats source water as necessary to produce finished water and then delivers some or all of that finished water to another public water system. Delivery may be through a direct connection or through the distribution system of one or more consecutive systems; and

[(98)] (131) "Zone of influence" means the land area that directly overlies and has the same horizontal extent as the part of the water table or other potentiometric surface that is perceptibly lowered by the withdrawal of water. The zone of influence delineated by the use of modeling is that area of land in which the water table or potentiometric surface is lowered by at least [one-half (0.5)] 0.5 foot. In the event of inadequate information and data to delineate the zone of influence, a radius of [one (1)] 1 mile shall be utilized for unconsolidated aquifer [groundwater] ground water sources and a radius of [one thousand (1000)] 1,000 feet shall be utilized for confined and bedrock aquifer [groundwater] ground water sources.

Sec. 2. Section 19-13-B102(c) of the Regulations of Connecticut State Agencies is amended to read as follows:

(c) Standards for quality of untreated water prior to treatment.

(1) All parameters in Table 1-C of subsection (c)(1) of this section shall be tested for each surface water source at least annually, except bacteriological and physical tests which shall be done quarterly.

[Ground water sources shall be tested for these parameters when the department determines that the source is vulnerable to contamination.]

TABLE 1-C. MONITORING PARAMETERS FOR SURFACE WATER SOURCES

Parameter	*Degree of Treatment*	
	Disinfection and Chemical Treatment	*Filtration*
[(1) BACTERIOLOGICAL] (A) Bacteriological.		
Coliform Organisms*	Not to exceed 100/100 ml monthly average, based on a running arithmetic average for the most recent twelve month period. No individual sample is to exceed 500/100 ml.	Not to exceed 20,000/100 ml as measured by a monthly geometric mean.
[(2) [PHYSICAL] (B) Physical.		
Color	Not to exceed [twenty (20)] 20 standard units in more than [ten] 10 percent [(10%)] of samples for most recent [twelve (12)] 12 month period.	Not to exceed [two hundred fifty (250)] 250 standard units as measured by a monthly geometric mean.
Turbidity	The turbidity level as specified in 40 CFR 141.74 (a) (4), as amended from time to time, in a representative sample of the source water immediately prior to the first or only point of disinfection application shall not exceed [(5)] 5 Nephelometric Turbidity	Not to exceed [two hundred fifty (250)] 250 standard units as measured by a monthly geometric mean.

*If coliform organisms are demonstrated to be not associated with a fecal source on the basis of a sanitary survey and differential tests, exception may be made.

Units (NTU).

Parameter	*Degree of Treatment*	
	Disinfection and Chemical Treatment Level mg/l	*Filtration Level mg/l*
[(3) INORGANIC CHEMICALS] (C) Inorganic chemicals.		
Arsenic[(a)]	[.01] .010	[.01] .010
Barium	1	1
Cadmium	.01	.01
Chloride	250	250
Chromium	.05	.05
Copper	.05	1.0
Cyanide	.01	0.2
[Flouride] Fluoride	2.0	2.0
Lead	.05	.05
MBAS (methylene blue active substance)	0.5	0.5
Mercury	.002	.005
Nitrate plus Nitrite as N	10	10
Selenium	.01	.01
Silver	.05	.05

[(a) The MCL for arsenic is effective January 23, 2006. Until then the MCL is 0.05 mg/L.]

[(4) PESTICIDES] (D) Pesticides.	All Degrees of Treatment Level [mg/L] mg/l
Endrin	0.002
Lindane	0.0002
Methoxychlor	0.04
Toxaphene	0.003
2,4-D	0.07
2,4,5-TP (silvex)	0.05

(2) (A) A system shall test a ground water source for the applicable contaminants listed in subsections (e)(1) through (e)(6), inclusive, of this section, if the department in the department's discretion determines that reasonable grounds exist to suspect that any of the applicable contaminants may be present in the ground water source. For the purposes of this section, "reasonable grounds" means any information that is deemed to be credible by the department to indicate that the particular source is located on or in proximity to land on which the production, storage, use, or disposal of any of the contaminants listed in subsections (e)(1) through (e)(6), inclusive, of this section may have occurred.

(B) Testing for contaminants under subsection (c)(2)(A) of this section shall be at a frequency and duration prescribed by the department. The department shall not require a system to test for contaminants under subsection (c)(2)(A) of this section more frequently than once per quarter or for longer than a consecutive 4-quarter period unless a MCL is exceeded, the concentration

of dieldrin exceeds 0.00003 mg/l, the concentration of methyl tertiary-butyl ether (MTBE) exceeds 0.07 mg/l, the concentration of 1,2,3-trichloropropane exceeds 0.0005 mg/l, the concentration of lead exceeds 0.015 mg/l, or the level of the contaminant or contaminants has increased when compared to previous results.

Sec. 3. Section 19-13-B102(e)(1) of the Regulations of Connecticut State Agencies is amended to read as follows:

(e) [**Water ready for consumption**] Finished Water.

(1) Physical Tests.

(A) Color [is] shall not [to] exceed [fifteen (15)] 15 standard units leaving the treatment plant nor at representative sampling points in the distribution system.

(B) Turbidity [is] shall not [to] exceed [five (5)] 5 standard units at representative sampling points in the distribution system.

(C) Odor [is] shall not [to] exceed a value of [two (2)] 2 in the treatment plant effluent on a scale of [0-5] 0 to 5 as follows:

0-None	3-Distinct
1-Very Faint	4-Decided
2-Faint	5-Strong

(D) The pH value [is] shall not [to] be less than 6.4 nor [to] exceed 10.0 at a point of entry to the distribution system or in the distribution system. A system conducting water quality parameter monitoring for pH in accordance with subsection (e)(9)(D) of this section [19-13-B102(e)(9)(D) of the Regulations of Connecticut State Agencies] shall comply with the pH requirements [pursuant to] in subsection (j)(8)(G) of this section [19-13-B102(j)(8)(G) of the Regulations of Connecticut State Agencies].

Sec. 4. Section 19-13-B102(e)(4) of the Regulations of Connecticut State Agencies is amended to read as follows:

(4) Organic Chemicals.

[Community] CWSs and [non-transient non-community water systems] NTNCs shall test for the organic chemicals specified below in Table 4-E1 of subsection (e)(4) of this section.

[Organic chemicals[a] and their limits.] **TABLE 4-E1. ORGANIC CHEMICALS[a] AND THEIR LIMITS**

Chemical[b]	*Maximum Contaminant Level (mg/l)*
Benzene	0.005
Bromobenzene	**
Bromomethane	**
n-Butyl Benzene	**

Carbon Tetrachloride	0.005
Chlorobenzene	0.1
Chloroethane	**
Chloromethane	**
o-Chlorotoluene	**
p-Chlorotoluene	**
Dibromomethane	**
m-Dichlorobenzene	**
o-Dichlorobenzene	0.6
p-Dichlorobenzene	0.075
1, 1-Dichloroethane	**
1, 2-Dichloroethane (EDC)	0.005
1, 1-Dichloroethylene	0.007
cis-1, 2-Dichloroethylene	0.07
Trans-1, 2-Dichloroethylene	0.1
Dichloromethane (Methylene chloride)	0.005
1, 2-Dichloropropane	0.005
1, 3-Dichloropropane	**
2, 2-Dichloropropane	**
1, 1-Dichloropropene	**
1, 3-Dichloropropene	**
Ethylbenzene	0.7
Methyl Tert Butyl Ether (MTBE)	**
Naphthalene	**
n-Propyl Benzene	**
Styrene	0.1
1, 1, 1, 2-Tetrachloroethane	**
1, 1, 2, 2-Tetrachloroethane	**
Tetrachloroethylene	0.005
Toluene	1
Total Trihalomethanes (TTHM)	[0.100] <u>0.080</u>
Bromodichloromethane	*
Bromoform	*
Chlorodibromomethane	*
Chloroform	*
1, 1, l-Trichloroethane	0.2
1, 1, 2-Trichloroethane	0.005
1, 2, 4-Trichlorobenzene	0.07
Trichloroethylene	0.005
1, 2, 3-Trichloropropane	**
1, 2, 4-Trimethylbenzene	**
1, 3, 5-Trimethylbenzene	**
Vinyl Chloride [(c)]	0.002
Xylenes (total)	10
m-Xylene	***
o-Xylene	***
p-Xylene	***

Notes:

* The MCL for Total Trihalomethanes (TTHM) is [0.100] 0.080 mg/l, which is the sum of the [four (4)] 4 constituent Trihalomethanes. [This level applies to any CWS until the following dates, on which the MCL for TTHM is lowered to 0.080 MG/L. All systems using surface water and GWUDI in whole or in part and serving at least 10,000 persons shall comply with the TTHM MCL of 0.080 MG/L and all other public water systems shall comply with the MCL for TTHM of O.080 MG/L by January 1, 2004.]

** A MCL has not been established for this chemical.

*** The MCL for Xylenes (total) is 10 mg/l, which is the sum of the [three (3)] 3 constituent Xylenes.

(a) The [method detection limit (MDL)] MDL for all organic chemicals is 0.0005 mg/l with the exception of MTBE which has an MDL of 0.002 mg/l.

(b) The department may require the testing of other chemicals for which a [Maximum Contaminant Level Goal] MCLG has been proposed by EPA or which the department has reason to believe may be health threatening.

(c) Quarterly analysis for vinyl chloride is required for ground water systems only when one or more of the following compounds are detected: trichloroethylene, 1, 2, Tetrachloroethylene, 1, 2 Dichloroethane, 1, 1, 1 Trichloroethane, Cis 1,2 Dichloroethylene, Trans 1, 2 Dichloroethylene, or 1, 1 Dichloroethylene. If the first analysis does not detect vinyl chloride, the [Department] department may reduce the frequency of vinyl chloride monitoring to once every [three (3)] 3 years.

Sec. 5. Section 19-13-B102(e)(7)(C) of the Regulations of Connecticut State Agencies is amended to read as follows:

(C) [Community] CWSs and [non-transient non-community water systems] NTNCs shall conduct monitoring [beginning in the initial compliance period] to determine compliance with the MCLs specified in [subdivisions 2, 3, and 4 of subsection 19-13-B102(e) of the Regulations of Connecticut State Agencies] subsections (e)(2), (e)(3) and (e)(4) of this section. [Systems serving fewer than one hundred and fifty (150) service connections shall begin monitoring in the second compliance period for the following chemicals: Benzo(a)pyrene, Dalapon, Di(2-ethylhexyl) adipate. Di(2-ethylhexyl) phthalate, Dinoseb, Diquat, Endothall, Endrin, glyphosate, Hexachlorobenzene, Hexachlorocyclopentadiene, oxamyl(vydate), Picloram, Simazine, 2,3,7,8-TCDD(Dioxin).]

(i) Monitoring frequency for [community] CWSs and [non-transient non-community water systems] NTNCs. CWSs and NTNCs shall monitor in accordance with the frequencies listed in Table 7-C1 of subsection (e)(7)(C)(i) of this section.

TABLE 7-C1. MONITORING FREQUENCY FOR CWSs AND NTNCs

Contaminant	BASE SAMPLING REQUIREMENT		REDUCED SAMPLING REQUIREMENT [(5)] 5	
	Ground Water Systems	Surface Water Systems [(4)] 4	Ground Water Systems	Surface Water Systems
Asbestos	Every 9 [yrs.] years	Every 9 [yrs.] years	Not Applicable	Not Applicable
Nitrate [(1)]1	Annually	Quarterly	Not Applicable	Annually [(2)] 2
Nitrite [(1)]1				

Inorganic [Chemicals] chemicals	Every 3 [yrs.] years	Annually	Not Applicable	Not Applicable
Organic [Chemicals] chemicals	Quarterly [(6)] 6	Quarterly [(6)] 6	Annually* [(3)] 3	Annually [(3)] 3
Pesticides, [Herbicides] herbicides and PCBs	Quarterly [(6)] 6	Quarterly [(6)] 6	Systems serving more than [3300] 3,300 persons: [two] quarters per year every 3 years [(3)] 3. Systems serving [3300] 3,300 persons or less; every 3 years [(3)] 3	

Notes:

[(1)] 1 Each [transient non-community water system] TNC shall monitor annually for nitrate and nitrite [beginning January 1, 1993].

[(2)] 2 Applicable only if all analytical results from [four] 4 consecutive quarters are less than [fifty] 50 percent [(50%)] of the MCL.

[(3)] 3 Applicable only if no single contaminant is detected in the results of the [four (4)] 4 consecutive quarters of the base sampling requirement.

* Reduce to once every [three (3)] 3 years after [three (3)] 3 years of no detection of any contaminant in annual sampling.

[(4)] 4 Or [groundwater under the influence of surface water] GWUDI systems.

[(5)] 5 Applicable only if [granted] approved in writing by the department.

[(6)] 6 See [sections 19-13-B102(e)(7)(C)(x), (xiv) and (xvi) of the Regulations of Connecticut State Agencies] subsections (e)(7)(C)(x), (xiii) and (xiv) of this section for exception.

(ii) A system shall monitor quarterly beginning in the next quarter, if in any [one] 1 sample [Inorganic] an inorganic chemical, with the exception of nitrate and nitrite, exceeds the MCL; organic chemical, pesticide, herbicide or PCB is detected at a level exceeding the MDL; or nitrate or nitrite exceeds or equals [fifty] 50 percent [(50%)] of the MCL.

(iii) The department may decrease the quarterly monitoring requirement of subsection (e)(7)(C)(ii) of this section [19-13-B102(e)(7)(C)(ii) of the Regulations of Connecticut State Agencies] for inorganic chemicals, with the exception of nitrate and nitrite, to the base sampling requirement and organic chemicals, along with pesticides, herbicides and PCB, to annual sampling provided [it] the department has determined that the system is reliably and consistently below the MCL for a minimum of [two (2)] 2 consecutive quarters for a [groundwater] ground water system and a minimum of [four (4)] 4 consecutive quarters for a surface water system. The department may decrease the quarterly monitoring requirement for systems which violated the MCL for organic chemicals, pesticides, herbicides and PCB to annual sampling provided that the system is reliably and consistently below the MCL for a minimum of [four (4)] 4 consecutive quarters. The department may decrease the quarterly monitoring requirement for systems[,] which exceeded the MDL for a contaminant that does not have an established MCL[,] to the reduced sampling requirement.

(iv) After [three (3)] 3 consecutive annual samples as required in subsection (e)(7)(C)(iii) of this section [19-13-B102(e)(7)(C)(iii) of the Regulations of Connecticut State Agencies] are less than the MDL, the department may allow a system to reduce the sampling frequency for organic

chemicals, pesticides, herbicides and PCB to the reduced sampling requirement.

(v) After [four (4)] 4 consecutive quarterly samples as required in subsection (e)(7)(C)(ii) of this section [19- 13-B102(e)(7)(C)(ii) of the Regulations of Connecticut State Agencies] are reliably and consistently less than the MCL for a [groundwater] ground water and less than [fifty] 50 percent [(50%)] of the MCL for a surface water system, the department may allow a system to reduce the sampling frequency for nitrate and nitrite to annually.

(vi) After the initial round of quarterly sampling is completed, a system that is monitoring annually shall take subsequent samples during the quarter(s) that resulted in the highest analytical result.

(vii) The department may increase the required monitoring frequency to detect variations within the system.

(viii) Each [public water] system shall monitor at the time designated by the department within each compliance period.

(ix) The department may determine compliance or initiate enforcement action based upon analytical results or other information compiled by [its representatives] the department.

(x) With the exception of nitrate, nitrite and TTHM, the department may allow the use of monitoring data collected after January 1, 1990 to satisfy the base sampling requirement provided the data is generally consistent with subsection [19-13-B102(e) of the Regulations of Connecticut State Agencies] (e) of this section for pesticides, herbicides, PCBs, organic chemicals and inorganic chemicals. Systems which use grandfathered samples of organic chemicals and did not detect any contaminant listed in subsection [19-13-B102(e)(4) of the Regulations of Connecticut State Agencies] (e)(4) of this section shall monitor annually [beginning January 1, 1993].

[(xi) Public water systems utilizing surface water or groundwater under the direct influence of surface water as a source of supply and serving less than 10,000 persons and community water systems that serve 10,000 or more persons shall analyze for total trihalomethanes (TTHM) at quarterly intervals on at least four (4) water samples for each entry point to the system.

Samples shall be collected in the distribution system at a location(s) approved by the department. The monitoring frequency of (TTHM) may be reduced pursuant to 40 CFR 141.30. The reduced monitoring frequency shall be approved in writing by the department. When trihalomethanes are detected in water entering the distribution system as a result of disinfection, the department may exempt public water systems serving less than 10,000 people and utilizing groundwater from the quarterly testing requirement of section 19-13-102(e)(7)(C)(ii) of the Regulations of Connecticut State Agencies provided the department determines that such testing is not necessary for the protection of the public health.

CWS that detects TTHM above 0.080 mg/L, but below 0.100 mg/L, as an annual average monitored and calculated under this subclause shall include health effects language prescribed in appendix A to 40 CFR 141 subpart O to their annual consumer confidence report.

Revised requirements detailed in subdivision (11) of this subsection take precedence over these requirements beginning on the effective date of this section. After December 31, 2003, this

subclause is no longer applicable.]

[(xii)] (xi) The department may grant a [public water] system a waiver from monitoring for dioxin if the department determines that the watershed or zone of influence has not been or is not being used for any of the following land uses: pesticides and herbicides manufacturer, pulp and paper manufacturer, plastics manufacturer, wood preservative manufacturer, landfill and domestic waste transfer station, or hazardous waste disposal facility[:], and that the [public water] system has no water quality history indicating the presence of dioxin. The waiver shall be in writing and is subject to renewal for each compliance period. To request a waiver from monitoring, the system shall submit an application to the department in accordance with subsection (t) of this section. Such application shall include documentation that the watershed or zone of influence has not been or is not being used for pesticides and herbicides manufacturer, pulp and paper manufacturer, plastics manufacturer, wood preservative manufacturer, a landfill and domestic waste transfer station, or a hazardous waste disposal facility and that the system has no water quality history indicating the presence of dioxin. If the department grants the waiver, the system is not required to monitor for the compliance period for which the waiver was granted.

[(xiii)] (xii) The department may grant a [public water] system a waiver from monitoring for endothall if the department determines that within the past year [treatment with] endothall has not been applied to any body of water, or to turf on sod farms or golf courses within the watershed or zone of [intluence] influence of the source of supply. The waiver shall be in writing and is subject to renewal for each compliance period. To request a waiver from monitoring, the system shall submit an application to the department in accordance with subsection (t) of this section. Such application shall include documentation that within the past year endothall has not been applied to any body of water or to turf on sod farms or golf courses within the watershed or zone of influence of the source of supply. If the department grants the waiver, the system is not required to monitor for the compliance period for which the waiver was granted.

[(xiv)] (xiii) The department may grant a [public water] system a waiver from the monitoring requirement for pesticides, herbicides and PCB if the department determines that the [public water systems] system's previous analytical results, collected from the source of supply and analyzed in accordance with the EPA's approved testing techniques and methodologies, showed no detectable limit of the contaminant to be waived and the source of supply is constructed and protected pursuant to sections 19-13-B32 and 19-13-B51d of the Regulations of Connecticut State Agencies. The waiver shall be in writing and is subject to renewal for each compliance period. To request a waiver from monitoring, the system shall submit an application to the department in accordance with subsection (t) of this section. Such application shall include documentation that the system's previous analytical results, collected from the source of supply and analyzed in accordance with the EPA's approved testing techniques and methodologies, showed no detectable limit of the contaminant and that the source of supply is constructed and protected pursuant to sections 19-13-B32 and 19-13-B51d of the Regulations of Connecticut State Agencies. If the department grants the waiver, the system is not required to monitor for the compliance period for which the waiver was granted.

[(xv) Instead of performing the monitoring requirements for the chemicals in section 19-13-B102(c)(3) of the Regulations of Connecticut State Agencies] that do not have an established MCL, systems serving fewer than one hundred and fifty (150) service connections may send a letter to the department stating that the system is available for sampling. This letter shall be sent

to the department by January 1, 1994. The system shall not send such samples to the department, unless requested to do so by the department.]

[(xvi)] (xiv) The department may grant a [public water] system a waiver from the monitoring requirement for organic chemicals (VOCs) if the department determines that the contaminant has not been previously used within the watershed or zone of influence and that the system's initial monitoring results showed no detectable limit of the contaminant to be waived. The waiver shall be in writing and is subject to renewal for each compliance period. To request a waiver from monitoring, the system shall submit an application to the in accordance with subsection (t) of this section. Such application shall include documentation that the contaminant has not been previously used within the watershed or zone of influence and the system's initial monitoring results showed no detectable limit of the contaminant. If the department grants the waiver, the system is not required to monitor for the compliance period for which the waiver was granted. As a condition of the waiver, the system shall take [one (1)] 1 sample at each sampling point during the time the waiver is effective.

[(xvii)] (xv) All systems that use a new source of water that began operation after January 22, 2004, shall demonstrate compliance with the MCL for inorganic chemicals, organic chemicals, pesticides, herbicides, and [PCBS] PCBs. The system shall also comply with the initial sampling frequencies specified by the department to ensure a system can demonstrate compliance with the MCL. Routine and increased monitoring frequencies shall be conducted in accordance with the requirements in this section.

Sec. 6. Section 19-13-B102(e)(7)(E) of the Regulations of Connecticut State Agencies is amended to read as follows:

(E) Sanitary surveys.

[(i) Frequency of sanitary surveys for a public water system collecting fewer than five (5) total coliform samples/month is as follows:

System Type	*Initial Survey Completed By*	*Frequency Of Subsequent Surveys*
Community Water System	6/29/94	Every 5 Years
Non-community Water	6/29/99	Every five years[1]

Note:

[1] For a non-community water system which uses only protected and disinfected groundwater in accordance with sections 19-13-B51a through 19-13-B51(1) of the regulations of Connecticut State Agencies, the sanitary survey may be repeated ever ten (10) years, instead of every five (5) years.]

(i) General requirements.

[(ii)] (I) A sanitary survey shall include, but not be limited to, an onsite inspection by the department of the system's water source or sources, facilities, operations, maintenance, and monitoring compliance program.

(II) Only the department or an agent approved by the department may conduct a sanitary survey. The department shall review the sanitary survey results to determine the adequacy of the system, including the existing monitoring frequency. The system is responsible for ensuring that the survey takes place.

(III) Systems shall provide to the department, at the department's request, any information that will enable the department to conduct a sanitary survey including, but not limited to information necessary to perform a HSA.

[(iii)] (IV) In conducting a sanitary survey of a system using [groundwater] ground water, information on sources of contamination within the delineated wellhead protection area shall be considered. If such information had been collected since the last sanitary survey, a special study to collect new information is not necessary.

(V) The department, during a sanitary survey, shall identify sources of contamination using the results of source water assessments or other relevant information.

(VI) The system's certified operator shall be present at the sanitary survey.

(ii) Sanitary survey frequency.

(I) A sanitary survey shall be completed no less frequently than every 3 years for CWSs and every 5 years for non-community water systems. The department may conduct more frequent sanitary surveys for any system.

(1) The initial sanitary survey for each CWS shall be conducted by December 31, 2012, unless the CWS provides at least 4 log treatment of viruses using inactivation, removal, or a department-approved combination of 4 log inactivation and removal before or at the first consumer for all of the system's ground water sources, in which case the initial sanitary survey shall be conducted by December 31, 2014.

(2) The initial sanitary survey for each non-community water system shall be conducted by December 31, 2014.

(II) The department may conduct sanitary surveys once every 5 years for a CWS that use only ground water sources if the CWS provides at least 4 log treatment of viruses using inactivation, removal, or a department-approved combination of 4 log inactivation and removal before or at the first consumer for all of the CWS's ground water sources.

(III) The department may use a phased review process to meet the requirements of subsection (e)(7)(E)(ii) of this section if all the applicable components of the sanitary survey under subsection (e)(7)(E)(iii) of this section are evaluated within the required interval.

(iii) Sanitary survey components.

A sanitary survey is composed of, but not limited to, an evaluation of the following 8 components:

(I) Source;

(II) Treatment;

(III) Distribution system;

(IV) Finished water storage;

(V) Pumps, pump facilities, and controls;

(VI) Monitoring, reporting, and data verification;

(VII) System management and operation; and,

(VIII) Compliance by the system with the requirements in sections 25-32-7a through 25-32-14, inclusive, of the Regulations of Connecticut State Agencies.

(iv) Response to significant deficiencies or violations of Regulations of Connecticut State Agencies in the sanitary survey report or other written notification.

[A] (I) If the department identifies significant deficiencies or violations of the Regulations of Connecticut State Agencies at a system [that provides water from a surface water source or a groundwater source under the direct influence of surface water, and that provides and operates treatment pursuant to section 19-13-B102 (j)(2) of the Regulations of Connecticut State Agencies, shall respond in writing to a significant deficiency stated in a department's sanitary survey report no later than forty- five (45) days after the system's receipt of such a report. The system's response shall indicate how and on what schedule the system will address the significant deficiency as defined in subsection (a) of this section. The department, or an agent approved by the Department, shall perform a sanitary survey of community water systems every three (3) years. The department, or an agent approved by the department, shall perform a sanitary survey of non-community water systems every five (5) years.], then the department shall issue a sanitary survey report or other written notification to the system containing the system's significant deficiencies or violations, or both, and may require the system to implement a specific corrective action as set forth in subsection (e)(7)(E)(iv)(VI) of this section or a specific interim measure as set forth in subsection (e)(7)(E)(iv)(VII) of this section, or both.

(II) Unless the department in the sanitary survey report or other written notification requires a system to implement a specific corrective action for a significant deficiency, a system shall consult with the department regarding appropriate corrective action and a schedule for implementing corrective action within 30 days of receiving the sanitary survey report or other written notification. The department may require a system to comply with department-specified interim measures as set forth in subsection (e)(7)(E)(iv)(VII) of this section pending completion of corrective action.

(III) Within 45 days of receiving the sanitary survey report or other written notification, or earlier if directed by the department:

(1) The system shall, unless the department in the sanitary survey report or other written notification requires a system to implement a specific corrective action for a significant deficiency, submit an application to the department requesting approval of the corrective actions the system will take to address the significant deficiencies, and the proposed schedule for completing such actions. Such application shall be submitted in accordance with subsection (t) of this section. If the department approves such application, such application shall constitute the department-approved corrective action plan and schedule.

(2) If the department in the sanitary survey report or other written notification required the system to implement a specific corrective action for a significant deficiency, the system shall notify the department that the system will complete, or has completed, the specified corrective action by a date certain. Such response shall be submitted in accordance with subsection (t) of this section.

(3) If the department in the sanitary survey report or other written notification identified a violation or violations of the Regulations of Connecticut State Agencies, the system shall submit to the department an application requesting approval of the actions the system will take, or has taken, to address the violation or violations and the proposed schedule for completing such actions. Such application shall be submitted in accordance with subsection (t) of this section.

(IV) Within 120 days of receiving the sanitary survey report or other written notification, or earlier if directed by the department, a system with a significant deficiency or deficiencies shall:

(1) Have either completed the corrective action and any interim measures required by the department in the sanitary survey report or other written notification or have completed corrective action and any interim measures in accordance with a department-approved corrective action plan and schedule; or,

(2) Be in compliance with a department-approved corrective action plan and schedule unless the system has applied for and the department granted a modification. A system may seek to modify the department-approved corrective action plan and schedule by submitting an application to the department requesting approval of the proposed modification or modifications to the department-approved corrective action plan and schedule in accordance with subsection (t) of this section. Such application shall contain the proposed modification or modifications to the department-approved corrective action plan and schedule. The system is required to comply with the department approved corrective action plan and schedule until such modification or modifications are approved.

(V) When a significant deficiency is identified at a system that uses either ground water and surface water or ground water and GWUDI, or both, the system shall comply with provisions of subsection (e)(7)(E)(iv) of this section, except in cases where the department determines that the significant deficiency is located in a portion of the distribution system that is served solely by surface water or GWUDI. If the significant deficiency is located in a portion of the distribution system that is served solely by surface water or GWUDI, the department may in the department's discretion choose not to require the system to implement one or more of the corrective actions in subsection (e)(7)(E)(iv)(VI)(1) through (3), inclusive, of this section.

(VI) The department shall require in a sanitary survey report or other written notification or a department-approved corrective action plan a ground water system with a significant deficiency or deficiencies to implement one or more of the following corrective actions in subsection (e)(7)(E)(iv)(VI)(1) through (4), inclusive, of this section and surface water or GWUDI systems with significant deficiencies to implement one or more of the corrective actions in subsection (e)(7)(E)(iv)(VI)(1) through (3), inclusive, of this section.

(1) Correct all significant deficiencies;

(2) Provide an alternate source of water;

(3) Eliminate the source of contamination; or,

(4) Provide treatment that reliably achieves at least 4 log treatment of viruses using inactivation, removal, or a department-approved combination of 4 log virus inactivation and removal before or at the first consumer for the ground water source.

(VII) Interim measures include, but are not limited to the following:

(1) Provision of an alternate source of water;

(2) Notice to consumers to boil all water to be used for consumption;

(3) Temporary disinfection of water in a manner prescribed by the department; and,

(4) Inactivation of a water source or sources.

(v) Regardless of whether the system is a CWS or a NTNC, if such system provides at least 4 log treatment of viruses using inactivation, removal, or a department-approved combination of 4 log virus inactivation and removal before or at the first consumer, such system shall have an operator who is certified pursuant to subsection 25-32-9 of the Regulations of Connecticut State Agencies.

(vi) Treatment technique violations.

(I) A system with a significant deficiency is in violation of a treatment technique requirement if, within 120 days of receiving the sanitary survey report or other written notification, or earlier if directed by the department, the system:

(1) Does not complete corrective action in accordance with the sanitary survey report or other written notification, if the department in the sanitary survey report or other written notification required the system to implement a specific corrective action or a specific interim measure, or both, or, if the system has a department-approved corrective action plan, in accordance with the department-approved corrective action plan and schedule, including department-specified interim measures, if any; or,

(2) Is not in compliance with a department-approved corrective action plan and schedule.

(II) Systems shall give public notification under subsection (i)(2) of this section for the treatment technique violations specified in subsection (e)(7)(E)(vi)(I) of this section.

Sec. 7. Section 19-13-B102(e)(7)(G)(vi) of the Regulations of Connecticut State Agencies is amended to read as follows:

(vi) If [one (1)] 1 or more [repeat] samples in the set of repeat samples is confirmed total coliform-positive, the system shall collect an additional set of repeat samples. The system shall collect the additional samples within [twenty-four (24)] 24 hours of the confirmed positive result, unless the department extends the 24-hour limit [as noted in subparagraph (7)(G)(i) of this] under subsection (e)(7)(G)(i) of this section. The system shall repeat this process until either total coliforms are not detected in [one (1)] 1 complete set of repeat samples or the system determines that the MCL for total coliforms has been exceeded and notifies the department.

Sec. 8. Section 19-13-B102(e)(7)(I) of the Regulations of Connecticut State Agencies is amended to read as follows:

(I) Fecal coliform and [E.coli] E. coli requirements.

(i) If any routine or repeat sample is total coliform-positive, the system shall analyze that total coliform-positive culture medium to determine if fecal coliforms or [E.coli] E. coli are present. The system shall notify the department by the end of the day on which the system is notified of the positive test result but no later than [ninety-six (96)] 96 hours from the time of sample collection. If the department office is closed, notification shall be made before the end of the next business day.

(ii) If any repeat sample is fecal coliform-positive or [E.coli-positive] E. coli-positive, or if a fecal coliform-positive or [E.coli-positive] E. coli-positive routine sample is followed by a total coliform-positive repeat sample and the repeat sample is not invalidated, the system is in violation of the MCL for total coliforms. This is an acute risk violation of the MCL for total coliforms.

Sec. 9. Section 19-13-B102(e)(7)(J) of the Regulations of Connecticut State Agencies is amended to read as follows:

(J) Heterotrophic bacteria interference (HBI).

[The department approved] (i) A laboratory analysis shall be conducted by an environmental laboratory issued a certificate of approval by the department pursuant to section 19a-29a of the Connecticut General Statutes.

(ii) A laboratory shall invalidate any total coliform sample which produces: a turbid culture in the absence of gas production using the multiple tube fermentation (MTF) technique, or a turbid culture in the absence of an acid reaction using the presence-absence (P-A) coliform test, or confluent growth or a colony number that is "too numerous to count" using the membrane filter (MF) technique (unless total coliforms are detected). [The]

(iii) If a laboratory invalidates a total coliform sample under subsection (e)(7)(J)(ii) of this section, the system shall collect another sample from the same location within [twenty-four (24)] 24 hours of

[the confirmed interference problem] notification from the laboratory that such sample is invalidated, and have [it] the sample analyzed for total coliforms. If HBI occurs in the replacement [samples] sample, the system shall continue to resample at the same location within [twenty-four (24)] 24 hours from notification of the laboratory until [an acceptable] a sample in which HBI does not occur is obtained. The results of the [acceptable] sample in which HBI does not occur shall be included in compliance calculations.

Sec. 10. Section 19-13-B102(e)(7)(K) of the Regulations of Connecticut State Agencies is amended to read as follows:

(K) Sampling protocol.

(i) Where a different schedule is prescribed pursuant to federal regulations, as they may be amended from time to time, the more stringent testing schedule shall apply.

(ii) Laboratory analyses shall be conducted using EPA sampling and testing methods and by an environmental laboratory approved by the department under section [25-40] 19a-29a of the Connecticut General Statutes.

(iii) Water samples shall be collected by technical personnel employed by an environmental laboratory [approved] issued a certificate of approval by the department under section [25-40] 19a-29a of the Connecticut General Statutes, or a certified distribution system operator, or a certified treatment plant operator, or a sanitarian, or an employee of the department, or a person under the direct supervision of either a certified laboratory, a certified distribution system operator or a certified treatment plant operator.

(iv) Analytical methods for all inorganic chemicals, organic chemicals, pesticides, herbicides and PCB shall conform to those approved by EPA and described in 40 CFR 141.23(k), as amended from time to time, and 40 CFR 141.24(e), as amended [October 29, 2002] from time to time. Analyses for lead, copper, pH, conductivity, calcium, alkalinity, orthophosphate, silica, and temperature shall be conducted pursuant to 40 CFR 141.89, as amended from time to time.

(v) Inorganic samples shall be collected and handled in accordance with 40 CFR 141.23(k)(2), as amended [March 25, 2003] from time to time. [Samples shall be collected, handled, and tested in accordance with the latest edition of "standard methods for the examination of water and wastewater" or in accordance with EPA guidelines as specified in the most current edition of the "handbook for sampling and sample preservation of water and wastewater" (EPA--600/4-82--029).]

(vi) Arsenic sampling results shall be reported to the nearest 0.001 [mg/L] mg/l.

Sec. 11. Section 19-13-B102 (e)(7)(M) of the Regulations of Connecticut State Agencies is amended to read as follows:

(M) Where the water is chlorinated, at least daily tests shall be made for residual chlorine. A system that uses a [groundwater] GWUDI source [under the direct influence of surface water,] and [that] does not provide and operate treatment pursuant to subsection (j)(2) of this section [19-13-B102(j)(2) of the Regulations of Connecticut State Agencies,] shall disinfect in accordance with subsection (j)(3)(B) of

this section [19-13-B102(j)(3)(B) of the Regulations of Connecticut State Agencies]. [When groundwater source not under the direct influence of surface water is chlorinated, a free chlorine residual of at least 0.2 mg/l after ten (10) minutes contact, or the equivalent thereof, shall be used.]

Sec. 12. Section 19-13-B102(e)(7)(O) of the Regulations of Connecticut State Agencies is amended to read as follows:

(O) In cases where [one (1) system supplies water to] a consecutive public water system receives all of the system's water from one or more wholesale systems, tests for inorganic chemicals, organic chemicals, pesticides, herbicides, PCB and radioactive substances need not be made by the consecutive public water system except for lead, copper and asbestos which shall be tested in both systems according to [subsection] subsections (e)(7)(C) and (e)(8) [and (e)(7)(C)] of this section. Bacteriological and physical tests shall be performed at the required frequencies by both systems. The department may waive asbestos testing for a consecutive public water [systems] system that receives all of the system's water from one or more wholesale systems, if the system can verify that it does not have any asbestos cement pipes in its distribution system.

Sec. 13. Section 19-13-B102(e)(7) of the Regulations of Connecticut State Agencies is amended by adding subparagraph (T) as follows:

(NEW) (T) Enhanced treatment for Cryptosporidium.

(i) General Requirements.

(I) General requirements.

Subsections (e)(7)(T), (h)(9), (i)(5), (j)(12), and (j)(13) of this section establish or extend treatment technique requirements in lieu of MCLs for Cryptosporidium. These requirements are in addition to the requirements for filtration and disinfection in subsections (e)(7)(H), (e)(7)(R), (e)(S), (h)(6), and (j)(2) through (j)(4) of this section.

(II) Applicability.

(1) Subsection (e)(7)(T) of this section apply to all systems supplied by a surface water source and systems supplied by a GWUDI source.

(2) Wholesale systems shall comply with the requirements of subsections (e)(7)(T), (h)(9), (i)(5), (j)(12), and (j)(13) of this section based on the population of the largest system in the combined distribution system.

(3) Subsections (e)(7)(T), (h)(9), (i)(5), (j)(12), and (j)(13) of this section apply to systems required by this section to provide filtration treatment, whether or not the system is currently operating a filtration system.

(III) Requirements.

(1) Systems subject to subsections (e)(7)(T), (h)(9), (i)(5), (j)(12), and (j)(13) of this section shall comply with the following requirements:

(A) Systems that conducted an initial round of monitoring pursuant to 40 CFR 141.701(a) shall conduct a second round of source water monitoring for each plant that treats a surface water or GWUDI source. This monitoring may include sampling for Cryptosporidium, E. coli, and turbidity as described in subsections (e)(7)(T)(ii) through (vi) and (h)(9) of this section, to determine what level, if any, of additional Cryptosporidium treatment the system shall provide.

(B) Systems that plan to make a significant change to disinfection practice shall develop disinfection profiles and calculate disinfection benchmarks, as described in subsections (e)(7)(T)(vii) through (viii) of this section.

(C) Systems shall determine the system's Cryptosporidium treatment bin classification as described in subsection (j)(12)(A) of this section and provide additional treatment for Cryptosporidium, if required, as described in subsection (j)(12)(B) of this section. Systems shall implement Cryptosporidium treatment according to the schedule in subsection (j)(12)(C) of this section.

(D) Systems required to provide additional treatment for Cryptosporidium shall implement microbial toolbox options that are designed and operated as described in subsections (j)(13)(A) through (F) of this section.

(E) Systems shall comply with the applicable recordkeeping and reporting requirements described in subsections (h)(9)(B) through (E) and (*l*)(1)(R) through (T) of this section.

(F) Systems shall address significant deficiencies identified in sanitary surveys performed by the department as described in subsection (e)(7)(E) of this section.

(ii) Source water monitoring requirements.

(I) Second round of source water monitoring. Systems that conducted an initial round of source water monitoring pursuant to 40 CFR 141.70(a) shall conduct a second round of source water monitoring that meets the requirements for monitoring parameters, frequency, and duration described in 40 CFR 141.701(a), as amended from time to time, unless the system meets the monitoring exemption criteria in subsection (e)(7)(T)(ii)(III) of this section. Systems shall conduct this monitoring on the schedule in subsection (e)(7)(T)(ii)(II) of this section.

(II) Monitoring schedule. Systems that conducted an initial round of source water monitoring pursuant to 40 CFR 141.701(a) shall commence the second round of monitoring required in subsection (e)(7)(T)(ii)(I) of this section no later than the month beginning with the date listed in Table 7-T1 of subsection (e)(7)(T)(ii)(II) of this section:

TABLE 7-T1. SOURCE WATER MONITORING STARTING DATES

Systems that serve...	*Shall begin the second round of source water monitoring required under subsection (e)(7)(T)(ii)(I) of this section no later than the month beginning...*
(1) At least 100,000 people...	April 1, 2015
(2) From 50,000 to 99,999 people...	October 1, 2015
(3) From 10,000 to 49,999 people...	October 1, 2016
(4) Fewer than 10,000 and monitor for E. coli...	October 1, 2017
(5) Fewer than 10,000 and monitor for Cryptosporidium[1] ...	April 1, 2019

[1] Applies to systems that meet the conditions of 40 CFR 141.701(a)(4), as amended from time to time.

(III) Monitoring avoidance.

(1) Systems are not required to conduct source water monitoring under subsection (e)(7)(T) of this section if the system will provide a total of at least 5.5 log of treatment for Cryptosporidium, equivalent to meeting the treatment requirements of Bin 4 in subsection (j)(12)(B) of this section, and obtains a monitoring exemption from the department. In order to obtain a monitoring exemption, the system shall submit an application to the department requesting such exemption in accordance with subsection (t) of this section and shall include with the application documentation demonstrating that the system will provide a total of at least 5.5 log of treatment for Cryptosporidium, equivalent to meeting the treatment requirements of Bin 4 in subsection (j)(12)(B) of this section. Such application shall be submitted to the department no later than the date on which the system is required to submit a sampling schedule for monitoring under subsection (e)(7)(T)(iii) of this section.

(2) Alternatively, a system may stop sampling at any point after the system has initiated monitoring if the system submits an application to the department requesting approval to provide a total of at least 5.5-log of treatment for Cryptosporidium, equivalent to meeting the treatment requirements of Bin 4 in subsection (j)(12)(B) of this section by the applicable treatment compliance date in subsection (j)(12)(C) of this section, and the department grants such approval. Such application shall be submitted in accordance with subsection (t) of this section and shall include with the application documentation demonstrating the system will install and operate technologies to provide this level of treatment by the applicable compliance date in subsection (j)(12)(C) of this section. Systems shall install and operate technologies to provide this level of treatment by the applicable treatment compliance date in subsection (j)(12)(C) of this section.

(IV) Plants operating only part of the year. Systems with surface water or GWUDI treatment plants that operate for only part of the year shall conduct source water monitoring in

accordance with subsection (e)(7)(T) of this section, but with the following modifications in subsection (e)(7)(T)(ii)(IV)(1) and (2) of this section. For purposes of subsection (e)(7)(T)(ii)(IV) of this section, a system operates for only part of the year if the system is in operation for less than 12 months out of a year.

(1) Systems shall sample the system's source water only during the months that the plant operates unless the department in the department's discretion specifies in writing another monitoring period based on plant operating practices.

(2) Systems with plants that operate less than 6 months per year and that monitor for Cryptosporidium shall collect at least 6 Cryptosporidium samples per year during each of 2 years of monitoring. Samples shall be evenly spaced throughout the period the plant operates.

(V) New sources.

(1) A system that begins using a new source of surface water or GWUDI shall monitor the new source on a schedule approved by the department. Source water monitoring shall meet the requirements of subsection (e)(7)(T) of this section. The system shall also meet the bin classification and Cryptosporidium treatment requirements of subsections (j)(12)(A) and (B) of this section for the new source on a schedule approved by the department. To request approval of the new source's monitoring schedules, the system shall submit an application to the department requesting approval of the schedules on which the system shall monitor the system's new source and meet the bin classification and Cryptosporidium treatment requirements for the new source. Such application shall be submitted in accordance with subsection (t) of this section.

(2) The system shall begin a second round of source water monitoring no later than 6 years following initial bin classification under subsection (j)(12)(A) of this section.

(VI) Failure to collect any source water sample required under subsection (e)(7)(T)(ii) of this section in accordance with the sampling schedule, sampling location, analytical method, approved laboratory, and reporting requirements of subsections (e)(7)(T)(iii) through (vi) of this section is a monitoring violation.

(iii) Sampling Schedules.

(I) Systems required to conduct source water monitoring under subsection (e)(7)(T)(ii) of this section shall submit an application to the department requesting approval of the sampling schedule that specifies the calendar dates when the system will collect each required sample. Such application shall be submitted in accordance with subsection (t) of this section.

(II) Systems shall submit sampling schedules no later than 3 months prior to the applicable date in subsection (e)(7)(T)(ii)(II) of this section for the second round of sampling.

(III) Systems shall collect samples within 2 days before or 2 days after the dates indicated in the department-approved sampling schedule (i.e., within a 5-day period around the schedule date) unless one of the following conditions applies:

(1) If an extreme condition or situation exists that may pose danger to the sample collector, or that cannot be avoided and causes the system to be unable to sample in the scheduled 5-day period, the system shall sample as close to the scheduled date as is feasible unless the department approves an alternate sampling date. If the system samples as close to the sampled date as is feasible, the system shall submit an explanation for the delayed sample to the department concurrent with the shipment of the sample to the laboratory. If instead the system wants to use an alternate sampling date, the system shall submit an application to the department within 2 calendar days of the date on which the system was required to collect the sample requesting approval of an alternative sampling date. Such application shall include the reason or reasons for requesting the alternative sampling date, including the reason or reasons for the delay in sampling, and shall be submitted in accordance with subsection (t) of this section.

(2)(A) If a system is unable to report a valid analytical result for a scheduled sampling date due to equipment failure, loss of or damage to the sample, failure to comply with the analytical method requirements, including the quality control requirements in subsection (e)(7)(T)(v) of this section, or the failure of an approved laboratory to analyze the sample, then the system shall collect a replacement sample.

(B) The system shall collect the replacement sample not later than 21 days after receiving information that an analytical result cannot be reported for the scheduled date unless the system demonstrates that collecting a replacement sample within this time frame is not feasible or the department approves an alternate sampling date. If it is not feasible for the system to collect a replacement sample within the required timeframe, the system shall submit an explanation for the delayed sampling date to the department concurrent with the shipment of the sample to the laboratory. If instead the system wants to use an alternate sampling date, the system shall submit an application to the department requesting approval of an alternative sampling date within 2 calendar days of the date by which the system was required to collect the sample. Such application shall include the reason or reasons for requesting the alternative sampling date, including the reason or reasons for the delay in sampling, and shall be submitted in accordance with subsection (t) of this section.

(IV) Systems that fail to meet the criteria of subsection (e)(7)(T)(iii)(III) of this section for any source water sample required under subsection (e)(7)(T)(ii) of this section shall revise the system's sampling schedules to add dates for collecting all missed samples. Systems shall submit an application to the department requesting approval of the revised schedule. Such application shall include the reason or reasons for requesting to use the revised schedule and shall be submitted in accordance with subsection (t) of this section. The application shall be submitted to the department prior to when the system begins collecting the missed samples.

(iv) Sampling locations.

(I) Systems required to conduct source water monitoring under subsection (e)(7)(T)(ii) of this section shall collect samples for each plant that treats a surface water or GWUDI source. Where multiple plants draw water from the same influent, such as the same pipe or intake, the department may approve 1 set of monitoring results to be used to satisfy the requirements of

subsection (e)(7)(T)(ii) of this section for all plants. To receive such approval, the system shall submit an application to the department requesting approval of the use of 1 set of monitoring results to be used to satisfy the requirements of subsection (e)(7)(T)(ii) of this section for all plants. Such application shall include the reason or reasons for requesting approval of 1 set of monitoring results, including documentation demonstrating that the plants draw water from the same influent, and shall be submitted in accordance with subsection (t) of this section.

(II) Systems shall collect source water samples prior to chemical treatment, such as coagulants, oxidants and disinfectants, unless the department approves a system to collect a source water sample after chemical treatment. To request such approval, the system shall submit an application to the department in accordance with subsection (t) of this section. Such application shall include the reason or reasons for requesting to collect a sample after chemical treatment instead of before chemical treatment, including documentation demonstrating that the collection of a sample prior to chemical treatment is not feasible for the system and that the chemical treatment is unlikely to have a significant adverse effect on the analysis of the sample. An approval shall not be granted by the department unless the department determines that the collecting of a sample prior to chemical treatment is not feasible for the system and that the chemical treatment is unlikely to have a significant adverse effect on the analysis of the sample.

(III) Systems that recycle filter backwash water shall collect source water samples prior to the point of filter backwash water addition.

(IV) Bank filtration.

(1) Systems that receive Cryptosporidium treatment credit for bank filtration under subsection (j)(4)(D) of this section shall collect source water samples in the surface water prior to bank filtration.

(2) Systems that use bank filtration as pretreatment to a filtration plant shall collect source water samples from the well (i.e., after bank filtration). Use of bank filtration during monitoring shall be consistent with routine operational practice. Systems collecting samples after a bank filtration process shall not receive treatment credit for the bank filtration under subsection (j)(13)(C)(iii) of this section.

(V) Multiple sources. Systems with plants that use multiple water sources, including multiple surface water sources and blended surface water and ground water sources, shall collect samples as specified in subsection (e)(7)(T)(iv)(V)(1) or (2) of this section. The use of multiple sources during monitoring shall be consistent with routine operational practice.

(1) If a sampling tap is available where the sources are combined prior to treatment, systems shall collect samples from the tap.

(2) If a sampling tap where the sources are combined prior to treatment is not available, systems shall collect samples at each source near the intake on the same day and shall follow the requirements in either subsection (e)(7)(T)(iv)(V)(2)(A) or (B) of this section for sample analysis.

(A) Systems may composite samples from each source into 1 sample prior to analysis. The volume of sample from each source shall be weighted according to the proportion of the source in the total plant flow at the time the sample is collected.

(B) Systems may analyze samples from each source separately and calculate a weighted average of the analysis results for each sampling date. The weighted average shall be calculated by multiplying the analysis result for each source by the fraction the source contributed to total plant flow at the time the sample was collected and then summing these values.

(VI) Additional Requirements. Systems shall submit an application to the department in accordance with subsection (t) of this section requesting approval of the system's sampling locations. The system shall provide with the system's application a description of the sampling location, and the position of the sampling location in relation to the system's water source(s) and treatment processes, including pretreatment, points of chemical treatment, and filter backwash recycle. Such application shall be submitted to the department at the same time as the sampling schedule required under subsection (e)(7)(T)(iii) of this section. The system shall not sample at the locations reported in the application until the system receives approval from the department to do so.

(v) Analytical Methods

(I) Cryptosporidium. Systems shall analyze for Cryptosporidium using analytical methods approved by EPA in 40 CFR 141.704(a), as amended from time to time.

(II) E. coli. Systems shall use the methods for enumeration of E. coli in source water approved by EPA in 40 CFR 141.704(b), as amended from time to time.

(III) Turbidity. Systems shall use methods for turbidity measurement approved by EPA in 40 CFR 141.704(c), as amended from time to time.

(vi) Approved Laboratories.

(I) Cryptosporidium. Systems shall have Cryptosporidium samples analyzed by a laboratory that is approved under the EPA's Laboratory Quality Assurance Evaluation Program for Analysis of Cryptosporidium in Water or a laboratory approved by the department pursuant to section 19a-29a of the Connecticut General Statutes for Cryptosporidium analysis.

(II) E. coli. Any laboratory certified by EPA or the National Environmental Laboratory Accreditation Conference, or approved by the department pursuant to section 19a-29a of the Connecticut General Statutes, for total coliform or fecal coliform analysis, is approved for E. coli analysis under subsections (e)(7)(T), (h)(9), (i)(5), (j)(12), and (j)(13) of this section when the laboratory uses the same technique for E. coli that the laboratory uses for 40 CFR 141.74, as amended from time to time.

(III) Turbidity. Measurements of turbidity shall be made by a laboratory that has a certificate of approval issued by the department pursuant to section 19a-29a of the Connecticut General Statutes.

(vii) Requirements when making a significant change in disinfection practice. Systems that plan to make a significant change to disinfection practice shall develop disinfection profiles and calculate disinfection benchmarks for Giardia lamblia and viruses as described in subsection (e)(7)(T)(viii) of this section. Prior to making a significant change to disinfection practice, the system shall submit an application to the department requesting approval to make a significant change to disinfection practice. Such application shall include be submitted in accordance with subsection (t) of this section. The application shall also include the following information:

(I) A completed disinfection profile and disinfection benchmark for Giardia lamblia and viruses as described in subsection (e)(7)(T)(viii) of this section.

(II) A description of the proposed significant change to disinfection practice.

(III) An analysis of how the proposed significant change to disinfection practice will affect the current level of disinfection.

(viii) Developing the disinfection profile and benchmark.

(I) Systems required to develop disinfection profiles under subsection (e)(7)(T)(vii) of this section shall follow the requirements of subsection (e)(7)(T)(viii) of this section. Systems shall monitor at least weekly for a period of 12 consecutive months to determine the total log inactivation for Giardia lamblia and viruses. If systems monitor more frequently, the monitoring frequency shall be evenly spaced. Systems that operate for fewer than 12 months per year shall monitor weekly during the period of operation. Systems shall determine log inactivation for Giardia lamblia through the entire plant, based on CT99.9 values in Tables 1.1 through 1.6, 2.1 and 3.1 of 40 CFR 141.74(b), as amended from time to time, as applicable. Systems shall determine log inactivation for viruses through the entire treatment plant based on a protocol approved by the department under subsection (e)(7)(T)(viii)(IV)(4) of this section.

(II) Systems with a single point of disinfectant application prior to the entrance to the distribution system shall conduct the monitoring in subsection (e)(7)(T)(viii)(II)(1) through (4) of this section. Systems with more than 1 point of disinfectant application shall conduct the monitoring in subsection (e)(7)(T)(viii)(II)(1) through (4) of this section for each disinfection segment. Systems shall monitor the parameters necessary to determine the total inactivation ratio, using analytical methods in 40 CFR 141.74(a), as amended from time to time.

(1) For systems using a disinfectant other than UV, the temperature of the disinfected water shall be measured at each RDC sampling point during peak hourly flow or at an alternative location approved by the department. To request approval to measure the temperature of the disinfected water at an alternative location, the system shall submit an application to the department requesting approval of such alternative location in accordance with subsection (t) of this section.

(2) For systems using chlorine, the pH of the disinfected water shall be measured at each chlorine RDC sampling point during peak hourly flow or at an alternative location approved by the department. To request approval to measure the pH of the disinfected

water at an alternative location, the system shall submit an application to the department requesting approval of such alternative location in accordance with subsection (t) of this section.

(3) The disinfectant contact time(s) shall be determined during peak hourly flow.

(4) The RDC(s) of the water before or at the first consumer and prior to each additional point of disinfectant application shall be measured during peak hourly flow.

(III) In lieu of conducting new monitoring under subsection (e)(7)(T)(viii)(II) of this section, systems may elect to meet the requirements of subsection (e)(7)(T)(viii)(III)(1) or (2) of this section. The system shall submit an application to the department requesting approval to meet the requirements of subsection (e)(7)(T)(viii)(III)(1) or (2) of this section in lieu of conducting new monitoring under subsection (e)(7)(T)(viii)(II) of this section in accordance with subsection (t) of this section.

(1) Systems that have at least 1 year of existing data that are substantially equivalent to data collected under the provisions of subsection (e)(7)(T)(viii)(II) of this section may use these data to develop disinfection profiles as specified in subsection (e)(7)(T)(viii)(III) of this section if the system has neither made a significant change to the system's treatment practice nor changed sources since the data were collected. Systems may develop disinfection profiles using up to 3 years of existing data.

(2) Systems may use disinfection profile(s) developed under subsections (e)(7)(S)(iv) and (v) in lieu of developing a new profile if the system has neither made a significant change to the system's treatment practice nor changed sources since the profile was developed. Systems that have not developed a disinfection profile under subsections (e)(7)(S)(iv) or (v) of this section, shall develop a disinfection profile using the same monitoring data on which the Giardia lamblia profile is based.

(IV) Systems shall calculate the total inactivation ratio for Giardia lamblia as specified in subsection (e)(7)(T)(viii)(IV)(1) through (3) of this section.

(1) Systems using only 1 point of disinfectant application may determine the total inactivation ratio for the disinfection segment based on the following methods.

(A) Determine 1 inactivation ratio (CTcalc/CT99.9) before or at the first consumer during peak hourly flow; or,

(B) Determine successive CTcalc/CT99.9 values, representing sequential inactivation ratios, between the point of disinfectant application and a point before or at the first consumer during peak hourly flow. The system shall calculate the total inactivation ratio by determining (CTcalc/CT99.9) for each sequence and then adding the (CTcalc/CT99.9) values together to determine (Σ (CT calc/CT99.9)).

(2) Systems using more than 1 point of disinfectant application before the first consumer shall determine the CT value of each disinfection segment immediately prior to the next point of disinfectant application, or for the final segment, before or at the first consumer, during

peak hourly flow. The (CTcalc/CT99.9) value of each segment and (Σ (CTcalc/CT99.9)) shall be calculated using the method in subsection (e)(7)(T)(viii)(IV)(1)(B) of this section.

(3) The system shall determine the total logs of inactivation by multiplying the value calculated in subsection (e)(7)(T)(viii)(IV)(1)(A) or (B) of this section by 3.0.

(4) Systems shall calculate the log of inactivation for viruses using a protocol approved by the department. To request approval of a protocol, the system shall submit an application to the department in accordance with subsection (t) of this section. The application shall include the system's proposed protocol that the system will use to calculate the total logs of inactivation.

(V) Systems shall use the procedures specified in subsections (e)(7)(T)(viii)(V)(1) and (2), inclusive, of this section to calculate a disinfection benchmark.

(1) For each year of profiling data collected and calculated under subsection (e)(7)(T)(viii)(I) through (IV) of this section, systems shall determine the lowest mean monthly level of both Giardia lamblia and virus inactivation. Systems shall determine the mean Giardia lamblia and virus inactivation for each calendar month for each year of profiling data by dividing the sum of daily or weekly Giardia lamblia and virus log inactivation by the number of values calculated for that month.

(2) The disinfection benchmark is the lowest monthly mean value (for systems with 1 year of profiling data) or the mean of the lowest monthly mean values (for systems with more than 1 year of profiling data) of Giardia lamblia and virus log inactivation in each year of profiling data.

Sec. 14. Section 19-13-B102(e)(8) through (11) of the Regulations of Connecticut State Agencies is amended to read as follows:

(8) Monitoring requirements for lead and copper in tap water. Unless otherwise indicated, the provisions of subsection (e)(8) of this section shall apply to CWSs and NTNCs.

(A) Sample site location.

(i) [By the applicable date for commencement of monitoring under subparagraph (D)(i) of this subdivision, each water] Each system shall complete a materials evaluation of [its] the system's distribution system in order to identify a pool of targeted sampling sites that meets the requirements of [this subdivision] subsection (e)(8) of this section, and that is sufficiently large to ensure that the [water] system can collect the number of lead and copper tap water samples required in [subparagraph (C) of this subdivision] subsection (e)(8)(C) of this section. All sites from which first draw samples are collected shall be selected from this pool of targeted sampling sites. Sampling sites shall not include faucets that have point-of-use or point-of-entry treatment devices designed to remove inorganic contaminants.

(ii) A [water] system shall use the information on lead, copper, and galvanized steel that [it] the system is required to collect under 40 CFR 141.42(d) (special monitoring for corrosivity characteristics), as amended from time to time, when conducting a materials evaluation. When

an evaluation of the information collected pursuant to 40 CFR 141.42(d), as amended from time to time, is insufficient to locate the requisite number of lead and copper sampling sites to meet the targeting criteria of [this subparagraph] subsection (e)(8)(A) of this section, the [water] system shall review the sources of information listed [below] in subsection (e)(8)(A)(ii)(I) through (III) of this section in order to identify a sufficient number of sampling sites. In addition, the system shall collect such information where possible in the course of [its] the system's normal operations (e.g., checking service line materials when reading water meters or performing maintenance activities): [all]

(I) All plumbing codes, permits, and records in the files of the building department(s) that indicate the plumbing materials that are installed within publicly and privately owned structures connected to the distribution system; [all]

(II) All inspections and records of the distribution system that indicate the material composition of the service connections that connect a structure to the distribution system; and [all]

(III) All existing water quality information, which includes the results of all prior analyses of the system or individual structures connected to the system, indicating locations that may be particularly susceptible to high lead or copper concentrations.

(iii) The sampling sites selected for a [community water system's] CWS's sampling pool (tier 1 sampling sites) shall consist of single family structures that: [contain]

(I) Contain copper pipes with lead solder installed after 1982 or contain lead pipes; or [are]

(II) Are served by a lead service line. When multiple-family residences comprise at least [twenty] 20 percent [(20%)] of the structures served by a [water] system, the system may include this type of [structures] structure in [its] the system's sampling pool.

(iv) Any [community water system] CWS with insufficient tier 1 sampling sites shall complete [its] the system's sampling pool with tier 2 sampling sites, consisting of buildings, including multiple-family residences that: [contain]

(I) Contain copper pipes with lead solder installed after 1982 or contain lead pipes; or [are]

(II) Are served by a lead service line.

(v) Any [community water system] CWS with insufficient tier 1 and tier 2 sampling sites shall complete [its] the system's sampling pool with tier 3 sampling sites, consisting of single family structures that contain copper pipes with lead solder installed before 1983. A [community-water system] CWS with insufficient tier 1, tier 2, and tier 3 sampling sites shall complete [its] the system's sampling pool with representative sites throughout the distribution system. For the purpose of [this subclause] subsection (e)(8)(A)(v) of this section, a representative site is a site in which the plumbing materials used at that site would be commonly found at other sites served by the [water] system.

(vi) The sampling sites selected for a [non-transient non-community water system] NTNC (tier 1

sampling sites) shall consist of buildings that: [contain]

(I) Contain copper pipes with lead solder installed after 1982 or contain lead pipes; or [are]

(II) Are served by a lead service line; or

(III) Contain copper pipes with lead solder installed after 1982 or contain lead pipes and are served by a lead service line.

(vii) A [non-transient non-community water system] NTNC with insufficient tier 1 sites to meet the targeting criteria in [subparagraph (A)(vi)of this subdivision] subsection (e)(8)(A)(vi) of this section shall complete [its] the NTNC's sampling pool with sampling sites that contain copper pipes with lead solder installed before 1983. If additional sites are needed to complete the sampling pool, the [non-transient non-community water system] NTNC shall use representative sites throughout the distribution system. For the purpose of [this subclause] subsection (e)(8)(A)(vii) of this section, a representative site is a site in which the plumbing materials used at that site would be commonly found at other sites served by the [water] system.

(viii) Any [water] system having a distribution system containing lead service lines shall draw [fifty] 50 percent [(50%)] of the samples [it] the system collects during each monitoring period from sites that contain lead pipes, or copper pipes with lead solder, and [fifty] 50 percent [(50%)] of those samples from sites served by a lead service line. A [water] system that cannot identify a sufficient number of sampling sites served by a lead service line shall collect first draw samples from all of the sites identified as being served by such lines.

(B) Sample collection methods.

(i) All tap water samples for lead and copper collected in accordance with [this] subsection (e)(8) of this section, with the exception of lead service line samples collected [pursuant to sections 19-13-B102(e)(8)(B)(iii) and (v) of the Regulations of Connecticut State Agencies] under subsection (e)(8)(B)(iii) and (v) of this section, shall be first-draw samples.

(ii) Each first-draw tap water sample for lead and copper shall be [one (1)] 1 liter in volume and have stood motionless in the plumbing system of each sampling site for at least [six (6)] 6 hours. First-draw samples from residential housing shall be collected from the cold-water kitchen tap or bathroom sink tap. First-draw samples from a non-residential building shall be [one (1)] 1 liter in volume and shall be collected at an interior tap from which water is typically drawn for consumption. Non-first-draw samples collected in lieu of first-draw samples pursuant to subsection (e)(8)(B)(v) of this section [19-13-B102(e)(8)(B)(v) of the Regulations of Connecticut State Agencies] shall be [one (1)] 1 liter in volume and shall be collected at an interior tap from which water is typically drawn for consumption. First-draw samples may be collected by the system or the system may allow residents to collect first-draw samples after instructing the residents of the sampling procedures specified in [this subparagraph] subsection (e)(8)(B) of this section. To avoid problems of residents handling nitric acid, acidification of first-draw samples may be done up to [fourteen (14)] 14 days after the sample is collected. After acidification to resolubilize the metals, the sample shall stand in the original container for the time specified in the approved EPA method, pursuant to

subsection (e)(7)(K) of this section [19-13- B102(e)(7)(k) of the Regulations of Connecticut State Agencies], before the sample is analyzed. If a system allows a resident to perform sampling, the system may not challenge, based on alleged errors in sample collection, the accuracy of sampling results.

(iii) Each service line sample shall be [one(1)] 1 liter in volume and have stood motionless in the lead service line for at least [six (6)] 6 hours. Lead service line samples shall be collected in [one (1)] 1 of the following [three (3)] 3 ways: [at]

(I) At the tap after flushing the volume of water between the tap and the lead service line (the volume of water shall be calculated based on the interior diameter and length of the pipe between the tap and the lead service line); [tapping]

(II) Tapping directly into the lead service line; or [if]

(III) If the sampling site is a building constructed as a single-family residence, allowing the water to run until there is a significant change in temperature which would be indicative of water that has been standing in the lead service line.

(iv) A [water] system shall collect each first-draw tap water sample from the same sampling site from which [it] the system collected a previous sample. If the [water] system cannot gain entry to a sampling site in order to collect a follow-up tap water sample, the system may collect the follow-up tap water sample from another sampling site in [its] the system's sampling pool as long as the new site meets the same targeting criteria, and is within reasonable proximity of the original site.

(v) A [non-transient non-community water system] NTNC, or a [community water system] CWS whose operation mandates continuous daily flow, such as a prison or hospital, that does not have enough taps that can supply first-draw samples, as defined in subsection (a) of this section [19-13-B102(a) of the Regulations of Connecticut State Agencies], shall notify the [Department] department in writing when [it] the system substitutes non-first-draw samples[,] pursuant to subsection (h)(5)(A)(vii) of this section [19-13-B102(h)(5)(A)(vii) of the Regulations of Connecticut State Agencies]. Such systems shall collect as many first-draw samples from appropriate taps as possible and identify sampling times and locations that would likely result in the longest standing time for the remaining sites.

(C) Number of lead and copper tap water samples. [Water systems] Systems shall collect at least [one (1)] 1 sample during each monitoring period specified in [subparagraph (D) of this subdivision] subsection (e)(8)(D) of this section from the number of sites listed in the second column ("Standard Monitoring") in [the table in this subparagraph] Table 8-C1 of subsection (e)(8)(C) of this section. A system conducting reduced monitoring under [subparagraph (G) of this subdivision] subsection (e)(8)(D)(iv) of this section shall collect at least [one (1)] 1 sample from the number of sites specified in the third column ("Reduced Monitoring") in [the table in this subparagraph] Table 8-C1 of subsection (e)(8)(C) of this section during each monitoring period specified in [subparagraph (G) of this subdivision] subsection (e)(8)(D)(iv) of this section. Such reduced monitoring sites shall be representative of the sites required for standard monitoring. [The Department may specify sampling locations when a system is conducting reduced monitoring.]

TABLE 8-C1. LEAD AND COPPER MONITORING SAMPLING SITES

System Size (Number of People Served)	*Number of Sites (Standard Monitoring)*	*Number of Sites (Reduced Monitoring)*
Greater than 100,000	100	50
10,001-100,000	60	30
3,301 to 10,000	40	20
501 to 3,300	20	10
101 to 500	10	5
Less than or equal to 100	5	5

(i) A system that has fewer than 5 drinking water taps that can be used for human consumption meeting the sample site criteria of subsection (e)(8)(A) of this section to reach the required number of sample sites listed in subsection (e)(8)(C) of this section, shall collect at least 1 sample from each tap and then shall collect additional samples from those taps on different days during the monitoring period to meet the required number of sites.

(ii) Alternatively, the system may submit to the department an application requesting that the department approve the system to collect a number of samples less than the number of sites specified in Table 8-C1 of subsection (e)(8)(C) of this section provided that 100 percent of all taps that can be used for human consumption are sampled. Such application shall include the reason or reasons why the system is requesting to collect a number of samples less than the number of sites specified in Table 8-C1 of subsection (e)(8)(C) of this section and shall be submitted in accordance with subsection (t) of this section.

(iii) The [Department] department may specify sampling locations when a system is conducting reduced monitoring.

[In the case of a consecutive public water system, the number of sampling sites shall be based on the total population of the consecutive system and the supplier's system. The number of sites for each system shall then be apportioned according to the percentage of the total population served by each system.]

(D) Timing of monitoring.

(i) Initial tap sampling.

[The first six (6) month monitoring period for small, medium-size and large systems shall begin on the following dates:

System Size (Number of People Served)	*First Six (6) Month Monitoring Period Begins*
Greater than 50,000	January 1, 1992
3,301 to 50,000	July 1, 1992
Less than or equal to 3,300	July 1, 1993

]

(I) All large systems shall monitor during [two (2)] 2 consecutive [six (6)] 6 month periods.

(II) All small and medium-size systems shall monitor during each [six (6)] 6 month monitoring period until: [the]

(1) The system exceeds the lead or copper action level and is therefore required to implement the corrosion control treatment requirements under subsection (j)(7) of this section, in which case the system shall continue monitoring in accordance with [subparagraph (E) of this subdivision] subsection (e)(8)(D)(ii) of this section, or [the]

(2) The system meets the lead and copper action levels during [two (2)] 2 consecutive [six (6)] 6 month monitoring periods, in which case the system may reduce monitoring in accordance with [subparagraph (G) of this subdivision] subsection (e)(8)(D)(iv) of this section.

[(E)] (ii) Monitoring after installation of corrosion control and source water treatment.

[Any large system that installs optimal corrosion control treatment pursuant to subsection (j)(7)(D)(iv) of this section shall monitor during two (2) consecutive six (6) month monitoring periods by the date specified in subsection (j)(7)(D)(v)of this section.]

(I) Any [small or medium-size] system that installs optimal corrosion control treatment pursuant to subsection [(j)(7)(E)(v)] (j)(7)(D)(v) of this section shall monitor during [two (2)] 2 consecutive [six (6)] 6 month monitoring periods by the date specified in subsection [(j)(7)(E)(vi)] (j)(7)(D)(vi) of this section.

(II) Any system that installs source water treatment pursuant to subsection (j)(9)(A)(iii) of this section shall monitor during [two (2)] 2 consecutive [six (6)] 6 month monitoring periods by the date specified in subsection (j)(9)(A)(iv) of this section.

[(F)] (iii) Monitoring after the department specifies water quality parameter values for optimal corrosion control. After the department specifies the values for water quality control parameters under subsection [(j)(8)(F)of] (j)(8)(F) of this section, the system shall monitor during each subsequent [six (6)] 6 month monitoring period, with the first monitoring period to begin on the date the department specifies the optimal values under subsection (j)(8)(F) of this section.

[(G)] (iv) Reduced monitoring.

[(i)] (I) A small or medium-size [water] system that meets the lead and copper action levels during each of [two (2)] 2 consecutive [six (6)] 6 month monitoring periods may reduce the number of samples in accordance with [subparagraph (c) of this subdivision] subsection (e)(8)(C) of this section, and reduce the frequency of sampling to once per year. A small or medium system collecting fewer than 5 samples as specified in subsection (e)(8)(C)(i) of this section that meets the lead and copper action levels during each of 2 consecutive 6 month monitoring periods may reduce the frequency of sampling to once per year. In no case shall the system reduce the number of samples required below the

minimum of 1 sample per available tap. This sampling shall begin during the calendar year immediately following the end of the second consecutive 6 month monitoring period.

[(ii)] (II) Any [water] system that meets the lead action level and maintains the range of values for the water quality control parameters reflecting optimal corrosion control treatment specified by the department under subsection (j)(8)(F) of this section during each of [two (2)] 2 consecutive [six (6)] 6 month monitoring periods may reduce the frequency of monitoring to once per year and reduce the number of lead and copper samples in accordance with [subparagraph (C) of this subdivision] subsection (e)(8)(C) of this section if [it] the system submits to the department an application requesting approval to do so and receives [written] such approval in writing from the department. Such application shall include the reason or reasons why the system is requesting to reduce the frequency of monitoring and the number of lead and copper samples and shall be submitted in accordance with subsection (t) of this section. This sampling shall begin during the calendar year immediately following the end of the second consecutive 6 month monitoring period after the department's approval of such application. The department shall review monitoring, treatment and other relevant information submitted by the [water] system in accordance with subsection (h)(5) of this section [19-13-B102(h)(5) of the Regulations of Connecticut State Agencies] and shall notify the system in writing[,] when [it] the department determines the system is eligible to commence reduced monitoring pursuant to [this subclause] subsection (e)(8)(D)(iv)(II) of this section. The department shall review, and where appropriate, revise [its] the department's determination when the system submits new monitoring or treatment data, or when other data relevant to the number and frequency of tap sampling becomes available.

[(iii)] (III) A small or medium-size [water] system that meets the lead and copper action levels during [three (3)] 3 consecutive years of monitoring may reduce the frequency of monitoring for lead and copper from annually to once every [three (3)] 3 years. Any [water] system that meets the lead action level and maintains the range of values for the water quality control parameters reflecting optimal corrosion control treatment specified by the department under subsection (j)(8)(F) of this section during [three (3)] 3 consecutive years of monitoring may reduce the frequency of monitoring from annually to once every [three (3)] 3 years if [it] the system submits to the department an application requesting approval to do so and receives [written] such approval in writing from the department. Such application shall include the reason or reasons why the system is requesting to reduce the frequency of monitoring and shall be submitted in accordance with subsection (t) of this section. Samples collected once every 3 years shall be collected no later than every third calendar year after the department's approval of such application. The department shall review monitoring, treatment, and other relevant information submitted by the [water] system in accordance with subsection (h)(5) of this section [19-13-B102(h)(5) of the Regulations of Connecticut State Agencies], and shall notify the system in writing[,] when [it] the department determines the system is eligible to reduce the frequency of monitoring to once every [three (3)] 3 years. The department shall review, and where appropriate, revise [its] the department's determination when the system submits new monitoring or treatment data, or when other data relevant to the number and frequency of tap sampling becomes available.

[(iv)] (IV) A [water] system that reduces the number and frequency of sampling shall collect

these samples from representative sites included in the pool of targeted sampling sites identified in [subparagraph (A) of this subdivision] subsection (e)(8)(A) of this section. Systems sampling annually or less frequently shall conduct the lead and copper tap sampling during the months of June, July, August, or September unless the department has approved a different sampling period in accordance with [this subclause] subsection (e)(8)(D)(iv)(IV)(1) of this section.

(1) The [Department] department, in [its] the department's discretion, may approve a different period for conducting the lead and copper tap sampling for systems collecting a reduced number of samples. Such a period shall be no longer than [four (4)] 4 consecutive months and shall represent a time of normal operation when the highest levels of lead are most likely to occur. For a [non-transient, non-community water system] NTNC that does not operate during the months of June through September, and for which the period of normal operation when the highest levels of lead are most likely to occur is not known, the department shall designate, in writing, a period that represents a time of normal operation for the system. This sampling shall begin during the period designated by the department in the calendar year immediately following the end of the second consecutive 6 month monitoring period for systems initiating annual monitoring and during the 3 year period following the end of the third consecutive calendar year of annual monitoring for systems initiating triennial monitoring.

(2) Systems monitoring annually, that have been collecting samples during the months of June through September and that receive department approval to alter [their] the system's sample collection period under [this subclause] subsection (e)(8)(D)(iv)(IV)(1) of this section, shall collect [their] the system's next round of samples during a time period that ends no later than [twenty-one (21)] 21 months after the previous round of sampling. Systems monitoring once every [three (3)] 3 calendar years that have been collecting samples during the months of June through September, and that receive department approval to alter [their] the system's sampling collection period under [this subclause] subsection (e)(8)(D)(iv)(IV)(1) of this section, shall collect [their] the system's next round of samples during a time period that ends no later than [forty-five (45)] 45 months after the previous round of sampling. Subsequent rounds of sampling shall be collected annually or once every [three (3)] 3 calendar years, as required by subsection (e)(8) of this section.

[(v)] (V) Any [water] system that demonstrates for [two (2)] 2 consecutive [six (6)] 6 month monitoring periods that the tap water lead level computed under subsection (j)(6)(B)(iii) of this section [19- 13-B102(j)(6)(B)(iii) of the Regulations of Connecticut State Agencies] is less than or equal to 0.005 mg/l and the tap water copper level computed under subsection (j)(6)(B)(iii) of this section [19-13-B102(j)(6)(B)(iii) of the Regulations of Connecticut State agencies] is less than or equal to 0.65 mg/l may reduce the number of samples in accordance with subsection (e)(8)(C) of this section [19-13-B102(e)(8)(C) of the Regulations of Connecticut State Agencies] and reduce the frequency of sampling to once every [three (3)] 3 calendar years.

[(vi)] (VI)(1) A small or medium-size [water] system subject to reduced monitoring that exceeds the lead or copper action level shall resume sampling in accordance with subsection (e)(8)(D)(iii) of this section [19-13-B102(e)(8)(F) of the Regulations of

Connecticut State Agencies] and collect the number of samples specified for standard monitoring under [subparagraph (C) of this subdivision] subsection (e)(8)(C) of this section. Such system shall also conduct water quality parameter monitoring in accordance with [subdivision (9) (B), (C) or (D) of this] subsection (e)(9)(B), (C) or (D) of this section (as appropriate) during the designated [four (4)] 4 consecutive month monitoring period in which [it] the system exceeded the action level. Any such system may resume annual monitoring for lead and copper at the tap at the reduced number of sites specified in subsection (e)(8)(C) of this section [19-13-B102(e)(8)(C) of the Regulations of Connecticut State Agencies] after [it] the system has completed [two (2)] 2 subsequent consecutive [six (6)] 6 month rounds of monitoring that meet the criteria of subsection (e)(8)(D)(iv)(I) of this section [19-13-B102(e)(8)(G)(i) of the Regulations of Connecticut State Agencies] and may resume monitoring once every [three (3)] 3 calendar years for lead and copper at the reduced number of sites after [it] the system demonstrates through subsequent rounds of monitoring that [it] the system meets the criteria of either subsection (e)(8)(D)(iv)(III) or (V) of this section [19-13-B102(e)(8)(G)(iii) or (v) of the Regulations of Connecticut State Agencies].

[(vii)] (2) Any [water] system subject to the reduced monitoring frequency that fails to meet the lead action level during any 4 consecutive month monitoring period or that fails to operate[,] at or above the minimum value or within the range of values for the water quality parameters specified by the department under subsection (j)(8)(F) of this section [19-13- B102(j)(8)(F) of the Regulations of Connecticut State Agencies,] for more than [nine (9)] 9 days in any [six (6)] 6 month period specified in subsection (e)(9)(D) of this section [19-13- B102(e)(9)(D) of the Regulations of Connecticut State Agencies,] shall conduct tap water sampling for lead and copper at the frequency specified in subsection (e)(8)(D)(iii) of this section [19-13-B102(e)(8)(F) of the Regulations of Connecticut State Agencies], collect the number of samples specified for standard monitoring [in] under subsection (e)(8)(C) of this section [19-13-B102(e)(8)(C) of the Regulations of Connecticut State Agencies], and shall resume monitoring for water quality parameters within the distribution system in accordance with subsection (e)(9)(D) of this section [19-13-B102(e)(9)(D) of the Regulations of Connecticut State Agencies]. This standard tap water sampling shall begin no later than the 6 month period beginning January 1 of the calendar year following the lead action level exceedance or water quality parameter excursion. Such a system may resume reduced monitoring for lead and copper at the tap and for water quality parameters within the distribution system under the following conditions in subsection (e)(8)(D)(iv)(VI)(2)(A), (B) and (C) of this section:

[(I)] (A) The system may resume annual monitoring for lead and copper at the tap at the reduced number of sites specified in subsection (e)(8)(C) of this section [19-13-B102(e)(8)(C) of the Regulations of Connecticut State Agencies] after [it] the system has completed [two (2)] 2 subsequent [six (6)] 6 month rounds of monitoring that meet the criteria of subsection (e)(8)(D)(iv)(II) of this section [19-13-B102(e)(8)(G)(ii) of the Regulations of Connecticut State Agencies] and the system has received written approval from the department that it is appropriate to resume reduced monitoring on an annual frequency. [;] This sampling shall begin during the calendar year immediately following the end of the second consecutive 6 month monitoring period.

[(II)] (B) The system may resume monitoring once every [three (3)] 3 calendar years for lead and copper at the tap at the reduced number of sites after [it] the system demonstrates through subsequent rounds of monitoring that [it] the system meets the criteria of either subsection (e)(8)(D)(iv)(III) or (V) of this section [19-13-B102(e)(8)(G)(iii) or (iv) of the Regulations of Connecticut State Agencies] and the system has received written approval from the department that it is appropriate to resume monitoring once every [three (3)] 3 calendar years. [; and]

[(III)] (C) The system may reduce the number of water quality parameter tap water samples required in accordance with subsection (e)(9)(E)(i) of this section [19-13-B102(e)(9)(E)(i) of the Regulations of Connecticut State Agencies] and the frequency with which [it] the system collects such samples in accordance with subsection (e)(9)(E)(ii) of this section [19-13-B102(e)(9)(E)(ii) of the Regulations of Connecticut State Agencies]. Such a system [may] shall not resume monitoring once every [three (3)] 3 calendar years for water quality parameters at the tap until [it] the system demonstrates, in accordance with the requirements of subsection (e)(9)(E)(ii) of this section [19-13-B102(e)(9)(E)(ii) of the Regulations of Connecticut State Agencies], that [it] the system has re-qualified for monitoring once every [three (3)] 3 calendar years.

[(viii)] (VII) Any [water] system subject to a reduced monitoring frequency under subsection (e)(8)(D)(iv) of this [subparagraph] section shall obtain [the] approval [of] from the department in writing[, pursuant to] in accordance with subsection (h)(5)(A)(iii) of this section [19-13-B102(d)(2) of the Regulations of Connecticut State Agencies, prior to] of any upcoming long-term change in treatment or the addition of a new source as described in subsection (h)(5)(A)(iii) of this section. The department shall review and approve such long-term change in treatment or addition of a new source under subsection (h)(5)(A)(iii) of this section before the system may implement it. The department may require the system to resume routine sampling in accordance with [subparagraph (F) of this subdivision] subsection (e)(8)(D)(iii) of this section and collect the number of samples specified for standard monitoring under subsection (e)(8)(C) of this section [19-13-B102(e)(8)(C) of the Regulations of Connecticut State Agencies] or take other appropriate steps, such as increased water quality parameter monitoring or re-evaluation of [its] the system's corrosion control treatment given the potentially different water quality considerations.

[(H)] (E) Additional monitoring by systems. The results of any monitoring conducted in addition to the minimum requirements of [this] subsection (e)(8) of this section shall be considered by the system and the department in making any determinations (i.e., calculating the 90th percentile lead or copper level) under [this subsection] subsections (e)(7)(K), (e)(8) through (e)(10), (h)(5), (i)(6), (j)(6) through (j)(10), and (l)(1) of this section.

[(I)] (F) Invalidation of lead or copper tap water samples. A sample invalidated under [this subparagraph] subsection (e)(8)(F) of this section does not count toward determining lead or copper 90th percentile levels under subsection (j)(6)(B)(iii) of this section [19-13-B102(j)(6)(B)(iii) of the Regulations of Connecticut State Agencies] or toward meeting the minimum monitoring requirements of subsection (e)(8)(C) of this section [19-13-B102(e)(8)(C) of the Regulations of Connecticut State Agencies].

(i) The department may invalidate a lead or copper tap water sample if at least one of the following conditions is met:

(I) The laboratory establishes that improper sample analysis caused erroneous results;

(II) The department determines that the sample was taken from a site that did not meet the site selection criteria of [this] subsection (e)(8) of this section;

(III) The sample container was damaged in transit; or,

(IV) There is substantial reason to believe that the sample was subject to tampering[; or

(V) There is substantial reason to believe that the sample was collected improperly].

(ii) The system shall report the results of all samples to the department and all supporting documentation for samples the system believes should be invalidated.

(iii)To invalidate a sample under [this subparagraph] subsection (e)(8)(F) of this section, the department shall document, in writing, the department's decision and the rationale for the decision. The department [may] shall not invalidate a sample solely on the grounds that a follow-up sample result is higher or lower than that of the original sample.

(iv) The [water] system shall collect replacement samples for any samples invalidated under subsection (e)(8) of this section if, after the invalidation of one or more samples, the system has too few samples to meet the minimum requirements of subsection (e)(8)(C) of this section [19- 13-B102(e)(8)(C) of the Regulations of Connecticut State Agencies]. Any such replacement samples shall be taken as soon as possible, but no later than [twenty (20)] 20 days after the date the department invalidates the sample or by the end of the applicable monitoring period, whichever occurs later. Replacement samples taken after the end of the applicable monitoring period shall not also be used to meet the monitoring requirements of a subsequent monitoring period. The replacement samples shall be taken at the same locations as the invalidated samples or, if that is not possible, at locations other than those already used for sampling during the monitoring period.

(G) Supplemental monitoring and notification of results. A system that fails to meet the lead action level on the basis of tap water samples collected in accordance with subsection (e)(8) of this section shall offer to sample the tap water of any consumer who requests it. The system is not required to pay for collecting or analyzing the lead tap water sample, nor is the system required to collect and analyze the sample itself.

[(e)] (9) Monitoring requirements for water quality parameters. All large [water] systems and all small and medium-size systems that exceed the lead or copper action level shall monitor water quality parameters in addition to lead and copper in accordance with [this subdivision] subsection (e)(9) of this section. The requirements of [this subdivision] subsection (e)(9) of this section are summarized in [the table at the end of this subdivision] Table 9-E3 of subsection (e)(9) of this section. Unless otherwise indicated, the provisions of subsection (e)(9) of this section apply to CWSs and NTNCs.

(A) General requirements.

(i) Sample collection methods. Tap water samples shall be representative of water quality throughout the distribution system taking into account the number of persons served, the different sources of water, the different treatment methods employed by the system, and seasonal variability. Tap sampling under [this subdivision] subsection (e)(9) of this section is not required to be conducted at taps targeted for lead and copper sampling under [subdivision (8)(A)(i)] subsection (e)(8)(A)(i) of this [subsection] section. Samples collected at the entry point(s) to the distribution system shall be from locations representative of each source after treatment. If a system draws water from more than [one (1)] 1 source and the sources are combined before distribution, the system shall sample at an entry point to the distribution system during periods of normal operating conditions (i.e., when water is representative of all sources being used).

(ii) Number of samples. Systems shall collect [two (2)] 2 tap water samples for applicable water quality parameters during each monitoring period specified under [subparagraphs (B) through (E) of this subdivision] subsections (e)(9)(B) through (E) of this section from the following number of sites in Table 9-E1 of subsection (e)(9)(A)(ii) of this section.

TABLE 9-E1. NUMBER OF WATER QUALITY PARAMETER SAMPLES FOR LEAD AND COPPER

System Size (Number of People Served) [Parameters]	*Number of Sites [For] for Water Quality Parameters*
Greater than 100,000	25
10,001[-] to 100,000	10
3,301 to 10,000	3
501 to 3,300	2
101 to 500	1
Less than or equal to 100	1

Systems shall collect [two (2)] 2 samples for each applicable water quality parameter at each entry point to the distribution system during each monitoring period specified in [subparagraph (B) of this subdivision] subsection (e)(9)(B) of this section. During each monitoring period specified in [subparagraphs (C) through (E) of this subdivision] subsections (e)(9)(C) through (E) of this section, systems shall collect [one (1)] 1 sample for each applicable water quality parameter at each entry point to the distribution system.

(B) Initial sampling. All large [water] systems shall measure the applicable water quality parameters as specified in [this subparagraph] subsection (e)(9)(B) of this section at taps and at each entry point to the distribution system during each [six (6)] 6 month monitoring period specified in [subdivision (8)(D) of this] subsection (e)(8)(D) of this section. All small and medium-size systems shall measure the applicable water quality parameters at the locations specified in [this subparagraph] subsection (e)(9)(B) of this section during each [six (6)] 6 month monitoring period specified in [subdivision (8)(D) of this] subsection (e)(8)(D) of this section during which the system exceeds the lead or copper action level.

(i) Monitoring at taps shall include: [PH]

(I) pH; [alkalinity]

(II) Alkalinity; [orthophosphate]

(III) Orthophosphate when an orthophosphate compound is used; [orthophosphate]

(IV) Orthophosphate and hydrolyzable phosphate when a condensed or blended phosphate is used; [silica]

(V) Silica, when a silicate compound is used; [calcium]

(VI) Calcium; [conductivity]

(VII) Conductivity; and [water]

(VIII) Water temperature.

(ii) At each entry point to the distribution system all of the applicable parameters listed in [subparagraph (B)(i)] subsection (e)(9)(B)(i) of this section.

(C) Monitoring after installation of corrosion control. Any large system that installs optimal corrosion control treatment pursuant to subsection [(j)(7)(D)(iv)] (j)(7)(D)(v) of this section shall measure the water quality parameters at the locations and frequencies specified in [this subparagraph] subsection (e)(9)(C) of this section during each [six (6)] 6 month monitoring period specified in [subdivision (8)(E) of this] subsection (e)(8)(D)(ii)(I) of this section. Any small or medium-size system that installs optimal corrosion control treatment shall conduct such monitoring during each [six-month] 6 month monitoring period specified in [subdivision (8)(E) of this] subsection (e)(8)(D)(ii)(II) of this section in which the system exceeds the lead or copper action level.

(i) Monitoring at taps, [two (2)] 2 samples for:

(I) pH; [alkalinity]

(II) Alkalinity; [orthophosphate]

(III) Orthophosphate, when an inhibitor containing an [orthophosphate] phosphate compound is used; [orthophosphate]

(IV) Orthophosphate and hydrolyzable phosphate when an inhibitor containing condensed or blended phosphate compounds is used; [silica]

(V) Silica, when an inhibitor containing a silicate compound is used; [calcium]

(VI) Calcium, when calcium carbonate stabilization is used as part of corrosion control.

(ii) At each entry point to the distribution system, at least [one (1)] 1 sample no less frequently

than every [two (2)] 2 weeks for: [PH]

(I) pH; [when]

(II) When alkalinity is adjusted as part of optimal corrosion control, a reading of the dosage rate of the chemical used to adjust alkalinity, and the alkalinity concentration; and [when]

(III) When a corrosion inhibitor is used as part of optimal corrosion control, a reading of the dosage rate of the inhibitor used, and the concentration of orthophosphate, [or] orthophosphate and hydrolyzable phosphate, or silica (whichever is applicable).

(D) Monitoring after the department specifies water quality parameter values for optimal corrosion control. After the department specifies the values for applicable water quality control parameters reflecting optimal corrosion control treatment under subsection (j)(8)(F) of this section [19-13-B102 (j)(8)(F) of the Regulations of Connecticut State Agencies], all large systems shall measure the applicable water quality parameters in accordance with [subparagraph (C) of this subdivision] subsection (e)(9)(C) of this section and determine compliance with the requirements of subsection (j)(8)(G) of this section [19-13- B102(j)(8)(G) of the Regulations of Connecticut State Agencies] every [six (6)] 6 months with the first [six (6)] 6 month period to begin on [the date] either January 1 or July 1, whichever comes first, after the department specifies the optimal values under subsection (j)(8)(F) of this section [19-13-B102 (j)(8)(F) of the Regulations of Connecticut State Agencies]. Any small or medium-size system shall conduct such monitoring during each [six (6)] 6 month period specified in [this subparagraph] subsection (e)(9)(D) of this section in which the system exceeds the lead or copper action level. For any such small and medium-size system that is on a reduced monitoring frequency pursuant to subsection (e)(8)(D)(iv) of this section [19-13-B102(e)(8)(G) of the Regulations of Connecticut State Agencies] at the time of the action level exceedance, the [end] start of the applicable 6 month monitoring period under [this subparagraph] subsection (e)(9)(D) of this section shall coincide with the [end] start of the applicable monitoring period under subsection (e)(8)(D)(iv) of this section [19-13- B102(e)(8)(G) of the Regulations of Connecticut State Agencies]. Compliance with department-designated optimal water quality parameter values shall be determined as specified under subsection (j)(8)(G) of this section [19-13-B102(j)(8)(G) of the Regulations of Connecticut State Agencies].

(E) Reduced monitoring.

(i) Any [water] system that maintains the range of values for the water quality parameters reflecting optimal corrosion control treatment during each of [two (2)] 2 consecutive [six (6)] 6 month monitoring periods under [subparagraph (D) of this subdivision] subsection (e)(9)(D) of this section shall continue monitoring at the entry point(s) to the distribution system as specified in [subparagraph (C) (ii) of this subdivision] subsection (e)(9)(C)(ii) of this section. Such system may collect [two (2)] 2 tap water samples for applicable water quality parameters from the following reduced number of sites in Table 9-E2 of subsection (e)(9)(E)(i) of this section during each [six (6)] 6 month monitoring period.

TABLE 9-E2. REDUCED SAMPLING SITES FOR LEAD AND COPPER

System Size (Number of People Served)	*Reduced Number of Sites [For] for Water Quality*

	Parameters
Greater than 100,000	10
10,001 to 100,000	7
3,301 to 10,000	3
501 to 3,300	2
101 to 500	1
Less than or equal to 100	1

(ii)(I) Any [water] system that maintains the range of values for the water quality parameters reflecting optimal corrosion control treatment specified by the department under subsection (j)(8)(F) of this section [19-13-B102(j)(8)(F) of the Regulations of Connecticut State Agencies] during [three (3)] 3 consecutive years of monitoring may reduce the frequency with which [it] the system collects the number of tap water samples for applicable water quality parameters specified in [this subparagraph] subsection (e)(9)(E) of this section from every [six (6)] 6 months to annually. This sampling begins during the calendar year immediately following the end of the monitoring period in which the third consecutive year of 6 month monitoring occurs. Any [water] system that maintains the range of values for the water quality parameters reflecting optimal corrosion control treatment specified by the department under subsection (j)(8)(F) of this section [19-13-B102(j)(8)(F) of the Regulations of Connecticut State Agencies] during [three (3)] 3 consecutive years of annual monitoring under [this paragraph] subsection (e)(9)(E) of this section may reduce the frequency with which [it] the system collects the number of tap water samples for applicable water quality parameters specified in [subclause (i) of this subparagraph] subsection (e)(9)(E)(i) of this section from annually to every [three (3)] 3 years. This sampling begins no later than the third calendar year following the end of the monitoring period in which the third consecutive year of monitoring occurs.

[(iii)] (II) A [water] system may reduce the frequency with which [it] the system collects tap water samples for applicable water quality parameters specified in [subclause (i) of this subparagraph] subsection (e)(9)(E)(i) of this section to every [three (3)] 3 years if [it] the system demonstrates during [two (2)] 2 consecutive monitoring periods that [its] the system's tap water lead level at the 90th percentile is less than or equal to the PQL for lead of 0.005 [milligrams per liter] mg/l, that [its] the system's tap water copper level at the 90th percentile is less than or equal to the PQL for copper of 0.65 mg/l, and that [it] the system also has maintained the range of values for the water quality parameters reflecting optimal corrosion control treatment specified by the department under subsection (j)(8)(F) of this section [19-13-B102(j)(8)(F) of the Regulations of Connecticut State Agencies]. Monitoring conducted every 3 years shall be done no later than every third calendar year.

[(iv)] (iii) A [water] system that conducts sampling annually shall collect these samples evenly throughout the year so as to reflect seasonal variability.

[(v)] (iv) Any [water] system subject to reduced monitoring frequency that fails to operate at or above the minimum value or within the range of values for the water quality parameters specified by the department under [Section 19-13-B102(j)(8)(F) of the Regulations of Connecticut State Agencies] subsection (j)(8)(F) of this section for more than [nine (9)] 9 days in any [six (6)] 6 month period specified in subsection (j)(8)(G) of this section [19-13-

B102(j)(8)(G) of the Regulations of Connecticut State Agencies] shall resume distribution system tap water sampling for water quality parameters in accordance with the number and frequency requirements in [subparagraph (D) of this subdivision] subsection (e)(9)(D) of this section, shall conduct tap water sampling for lead and copper at the frequency specified in subsection (e)(8)(D)(iii) of this section [19-13-B102(e)(8)(F) of the Regulations of Connecticut State Agencies], and shall collect the number of samples specified for standard monitoring in subsection (e)(8)(C) of this section [19-13-B102(e)(8)(C) of the Regulations of Connecticut State Agencies]. Such a system may resume annual monitoring for water quality parameters at the tap, at the reduced number of sites specified in [subclause (i) of this subparagraph] subsection (e)(9)(E)(i) of this section, after [it] the system has completed [two (2)] 2 subsequent consecutive [six (6)] 6 month rounds of monitoring that meet the criteria of [subclause (I) of this subparagraph] subsection (e)(9)(E)(i) of this section, and may resume monitoring once every [three (3)] 3 calendar years for water quality parameters at the tap at the reduced number of sites, after [it] the system demonstrates through subsequent rounds of monitoring that [it] the system meets the criteria of either [subclause (ii) or (iii) of this subparagraph] subsection (e)(9)(E)(ii) or (iii) of this section.

(F) Additional monitoring by systems. The results of any monitoring conducted in addition to the minimum requirements of [this subdivision] subsection (e)(9) of this section shall be considered by the system and the department in making any determinations (i.e. determining concentrations of water quality parameters) under [this subdivision] subsection (e)(9) of this section or subsection (j)(8) of this section [19-13-B102(j)(8) of the Regulations of Connecticut State Agencies].

TABLE 9-E3. SUMMARY OF MONITORING REQUIREMENTS FOR WATER QUALITY PARAMETERS[(1)] 1

Monitoring Period	*Parameters[(2)] 2*	*Location*	*Frequency*
Initial Monitoring	pH, alkalinity, orthophosphate or silica[(3)] 3, calcium, conductivity, system, temperature	Taps and at entry points to distribution system	Every [six (6)] 6 months
After Installation of Corrosion Control	pH, alkalinity, orthophosphate or silica, [(3)] 3 calcium[(4)] 4	Taps	Every [six (6)] 6 months
	pH, alkalinity dosage rate concentration (if alkalinity adjusted as part of corrosion control), inhibitor dosage rate and inhibitor residual[(5)] 5	Entry point(s) to distribution system	No less frequently than every [two (2)] 2 weeks
After Department specifies Parameter Values for Optimal Corrosion Control	pH, alkalinity, orthophosphate or silica, [(3)] 3 calcium [(4)] 4	Taps	Every [six (6)] 6 months

	pH, alkalinity dosage rate and concentration (if alkalinity adjusted as part of corrosion control), inhibitor dosage rate and inhibitor residual[(5)] 5	Entry point(s) to distribution system	No less frequently than every [two (2)] 2 weeks
Reduced Monitoring	pH, alkalinity, orthophosphate or silica, [(3)] 3 calcium[(4)] 4	Taps	Every [six (6)] 6 months, annually[(6)] 6, or every [three (3)] 3 years[(7)] 7, at reduced number of sites
	pH, alkalinity dosage rate and concentration (if alkalinity adjusted as part of corrosion control), inhibitor dosage rate and inhibitor residual[(5)] 5	Entry point(s) to distribution system	No less frequently than every [two (2)] 2 weeks

Notes:

[(1)] 1 Table is for illustrative purposes. Consult the text of [this] subsections (e)(7)(K), (e)(8) through (e)(10), and (j)(6) through (j)(10) of this section for detailed regulatory requirements.

[(2)] 2 Small and medium-size systems shall monitor for water quality parameters only during monitoring periods in which the system exceeds the lead or copper action level.

[(3)] 3 Orthophosphate shall be measured only when an inhibitor containing phosphate compound is used. Silica shall be measured only when an inhibitor containing silicate compound is used.

[(4)] 4 Calcium shall be measured only when calcium carbonate stabilization is used as part of corrosion control.

[(5)] 5 Inhibitor dosage rates and inhibitor residual concentrations (orthophosphate or silica) shall be measured only when an inhibitor is used.

[(6)] 6 A [water] system may reduce frequency of monitoring for water quality parameters at the tap, from every [six (6)] 6 months to annually, if [it] the system has maintained the range of values for water quality parameters reflecting optimal corrosion control during [three (3)] 3 consecutive years of monitoring.

[(7)] 7 A [water] system may further reduce the frequency of monitoring for water quality parameters at the tap, from annually to once every [three (3)] 3 years, if [it] the system has maintained the range of values for water quality parameters reflecting optimal corrosion control during [three (3)] 3 consecutive years of annual monitoring. [Water] The system may reduce monitoring from every [six (6)] 6 months to once every [three (3)] 3 calendar years, but no later than every third calendar year, for water quality parameters at the tap if [it] the system has maintained all of the following 90th percentile lead levels less than or equal to 0.005 mg/l, 90th percentile copper levels less than or equal to 0.65 mg/l, and the range of water quality parameters designated by the department under [section 19-13-B102(j)(8)(F) of the Regulations of Connecticut State Agencies] subsection (j)(8)(F) of this section, as representing optimal corrosion control, during [two (2)] 2 consecutive [six (6)] 6 month monitoring periods.

[(e)] (10) Monitoring requirements for lead and copper in source water. Unless otherwise indicated, the provisions of subsection (e)(10) of this section apply to CWSs and NTNCs.

(A) Sample location, collection methods, and number of samples.

(i) A [water] system that fails to meet the lead or copper action level on the basis of tap water samples collected in accordance with [subdivision (8) of this] subsection (e)(8) of this section shall collect lead and copper source water samples in accordance with the following requirements in subsections (e)(10)(A)(i)(I) and (II) of this section regarding sample location, number of samples, and collection methods:

(I) [Groundwater] Ground water systems shall take a minimum of [one] 1 sample[,] at every point of entry to the distribution system which is representative of each active source of supply after treatment, unless conditions make another location more representative of each source or treatment plant. Surface water systems and systems with a combination of active surface and [groundwater] ground water sources shall take a minimum of [one] 1 sample[,] at every point of entry to the distribution system after any application of treatment or in the distribution system at a point which is representative of each active source after treatment, unless conditions make another location more representative of each source or treatment plant.

(II) If a system draws water from more than [one] 1 source and the sources are combined before distribution, the system shall sample at a point of entry to the distribution system during periods of normal operating conditions (i.e., when water is representative of all sources being used).

(ii) Where the results of sampling exceed the maximum permissible source water levels established under subsection [(j)(9)(B)(iv)of] (j)(9)(B)(iv) of this section, the department may require that [one (1)] 1 additional sample be collected as soon as possible after the initial sample was taken (but not to exceed [two (2)] 2 weeks) at the same sampling point. If a department-required confirmation sample is taken for lead or copper, then the results of the initial and confirmation sample shall be averaged in determining compliance with the department-specified maximum permissible levels. Any sample value below the detection limit shall be considered to be zero. Any value above the detection limit but below the PQL shall be considered as either the measured value or [one-half] 0.5 the PQL.

(B) Monitoring frequency after system exceeds tap water action level. Any system which exceeds the lead or copper action level at the tap shall collect [one] 1 source water sample from each entry point to the distribution system [within six (6)] no later than 6 months after the end of the tap monitoring period [, pursuant to sections 19-13-B102(e)(8)(D) through (G) of the Regulations of Connecticut State Agencies, in] during which the [exceedance occurred] lead or copper action level was exceeded. For monitoring periods that are annual or less frequent, the end of the monitoring period is September 30 of the calendar year in which the sampling occurs, or if the department has established an alternate monitoring period, the last day of that period.

(C) Monitoring frequency after installation of source water treatment. Any system that installs source water treatment pursuant to subsection (j)(9)(A)(iii) of this section, shall collect an additional source water sample from each entry point to the distribution system during [two (2)] 2 consecutive [six (6)] 6 month monitoring periods by the deadline specified in subsection (j)(9)(A)(iv) of this section.

(D) Monitoring frequency after the department specifies maximum permissible source water levels or determines that source water treatment is not needed.

(i) A system shall monitor at the frequency specified in [this subparagraph] subsection (e)(10)(D) of this section in cases where the department specifies maximum permissible source water levels under subsection (j)(9)(B)(iv) of this section or determines that the system is not required to install source water treatment under subsection (j)(9)(B)(ii) of this section.

(I) A [water] system using only [groundwater] ground water shall collect samples once during the [three-year] 3-year compliance period in effect when the applicable department determination under [this subparagraph] subsection (e)(10)(D)(i) of this section is made. Such systems shall collect samples once during each subsequent compliance period. Triennial samples shall be collected every third calendar year.

(II) A [water] system using surface water or a combination of surface water and [groundwater] ground water shall collect samples once during each calendar year, the first annual monitoring period to begin on the date on which the applicable department determination is made under [this subparagraph] subsection (e)(10)(D)(i) of this section.

(ii) A system is not required to conduct source water sampling for lead or copper if the system meets the action level for the specific contaminant in tap water samples during the entire source water sampling period applicable to the system under [this subparagraph] subsection (e)(10)(D) of this section.

(E) Reduced monitoring frequency.

(i) A system using only ground water may reduce the monitoring frequency for lead and copper in source water to once during each 9-year compliance cycle provided that the samples are collected no later than every ninth calendar year and if the system meets one of the following criteria:

(I) The system demonstrates that finished drinking water entering the distribution system has been maintained below the maximum permissible lead and copper concentrations specified by the department in subsection (j)(9)(B)(iv) of this section during at least 3 consecutive compliance periods under subsection (e)(10)(D)(i) of this section; or

(II) The department has determined that source water treatment is not needed and the system demonstrates that, during at least 3 consecutive compliance periods in which sampling was conducted under subsection (e)(10)(D)(i) of this section, the concentration of lead in source water was less than or equal to 0.005 mg/l and the concentration of copper in source water was less than or equal to 0.65 mg/l.

(ii) A system using surface water (or a combination of surface water and ground water) may reduce the monitoring frequency in subsection (e)(10)(D)(i) of this section to once during each 9-year compliance cycle provided that the samples are collected no later than every ninth calendar year and if the system meets one of the following criteria:

(I) The system demonstrates that finished drinking water entering the distribution system has been maintained below the maximum permissible lead and copper concentrations specified by the department in subsection (j)(9)(B)(iv) of this section for at least 3 consecutive years; or,

(ii) The department has determined that source water treatment is not needed and the system demonstrates that, during at least 3 consecutive years, the concentration of lead in source water was less than or equal to 0.005 mg/l and the concentration of copper in source water was less than or equal to 0.65 mg/l.

(11) Monitoring requirements for disinfection byproducts, residuals, and precursors.

(A) Disinfectant residuals, disinfection byproducts, and disinfection byproduct precursors.

[(A) Compliance dates and applicability] (i) General.

[(i) Chlorine, chloramines, and ozone

CWS or NTNC that uses at least one of these chemicals in any part of the treatment process, uses surface water or GWUDI as a source in whole or in part and serves at least 10,000 persons shall comply with the requirements of this subdivision. Any other CWS and NTNC that uses at least one of these chemicals in any part of the treatment process shall comply with the requirements of this subdivision beginning January 1, 2004. Additionally, any CWS or NTNC that purchases water from a system that uses at least one of these chemicals and is not part of the supplying system's monitoring plan, developed in accordance with subsection 19-13-B102(e)(11)(F), shall comply with the requirements of this subdivision if it serves at least 10,000 persons, and beginning January 1, 2004 if it serves fewer than 10,000 persons or uses only groundwater not under the direct influence of surface water.

(ii) Chlorine Dioxide

Any public water system that uses chlorine dioxide as a disinfectant or oxidant, or purchases water from a system that uses chlorine dioxide and is not part of the supplying system's monitoring plan developed in accordance with section 19-13-B102(e)(11)(F), shall comply with any requirements for chlorine dioxide in this subdivision if it serves at least 10,000 persons, or beginning January 1, 2004 if it serves fewer than 10,000 persons.

(iii) A system that is installing granular activated carbon or membrane technology to comply with this subdivision may apply to the department for an extension of up to twenty-four (24) months past the dates in subclauses (i) and (ii) of this subparagraph but not later than December 31, 2003. In granting the extension, the department shall set a schedule for compliance and may specify any interim measures that the system shall take.]

(I) Requirements.

(1) Any CWS or NTNC that adds a chemical disinfectant to the water in any part of the drinking water treatment process shall modify the system's practices to meet the MCLs and MRDLs in subsections (e)(11)(B)(i) and (ii) of this section, respectively, and the

treatment technique requirements for disinfection byproduct precursors in subsection (j)(11) of this section. Any CWS or NTNC that purchases water from a system that adds a chemical disinfectant to the water in any part of the drinking water treatment process and is not part of the supplying system's monitoring plan under subsection (e)(11)(A)(iii)(VI) of this section shall modify the purchasing CWS or NTNC's practices to meet the MCLs and MRDLs in subsections (e)(11)(B)(i) and (ii) of this section, respectively, and the treatment technique requirements for disinfection byproduct precursors in subsection (j)(11) of this section.

(2) Any TNCs that use chlorine dioxide as a disinfectant or oxidant shall modify their practices to meet the MRDL for chlorine dioxide in subsection (e)(11)(B)(ii) of this section. Any TNC that purchases water from a system that uses chlorine dioxide as a disinfectant or oxidant and is not part of the supplying system's monitoring plan under subsection (e)(11)(A)(iii)(VI) of this section shall modify the purchasing CWS or NTNC's practices to meet the MRDL for chlorine dioxide in subsection (e)(11)(B)(ii) of this section.

(II) Applicability. Unless otherwise noted, all CWSs and NTNCs shall comply with the requirements of subsection (e)(11)(A) of this section and the MCLs and MRDLs in subsection (e)(11)(B) of this section.

[(B) General Requirements

(i) A system that is required to monitor for disinfection byproducts in accordance with subparagraph (A) of this subdivision shall test for the following disinfectant residuals and disinfection byproducts according to the requirements of this subdivision.

DISINFECTANTS AND THEIR LIMITS

Disinfectant Residual	*MRDLG (mg/l)*	*MRDL (mg/l)*	*Compliance Based on*
Chlorine	4 (as Cl_2)	4.0 (as Cl_2)	Annual average [1]
Chloramine	4 (as Cl_2)	4.0 (as Cl_2)	Annual average [1]
Chlorine Dioxide	0.8 (as ClO_2)	0.8 (as ClO_2)	Consecutive daily samples [2]

NOTES:

[1] See subparagraph (G)(vii) of this subdivision.

[2] See subparagraph (G)(viii) of this subdivision.

DISINFECTION BYPRODUCTS AND THEIR LIMITS

Disinfection Byproducts	*MCLG (mg/l)*	*MCL (mg/l)*	*Compliance Based on*
Total Trihalomethanes	N/A	0.080	Running annual 02average
Bromodichloromethane	zero	*	
Dibromochloromethane	0.06	*	
Bromoform	zero	*	
Chloroform	0.07	*	
Haloacetic acids (five)	N/A	0.060	
-dichloracetic acid	zero	*	
-trichloroacetic acid	0.3	*	
Bromate	zero	0.010	
Chlorite	0.8	1.0	3 sample set

N/A – Not applicable.
* – No individual MCL for TTHM and HAA5 constituents]

(III) Notwithstanding the MRDLs in subsection (e)(11)(B)(ii) of this section, systems may increase residual disinfectant levels in the distribution system of chlorine or chloramines, but not chlorine dioxide, to a level and for a time necessary to protect public health, to address specific microbiological contamination problems caused by circumstances such as, but not limited to, distribution line breaks, storm run-off events, source water contamination events, or cross-connection events.

(IV) Table 11-A1 of subsection (e)(11)(A)(i)(IV) of this section establishes the best technology, treatment techniques, or other means available for achieving compliance with the MCLs as RAAs for the disinfectant byproducts established in Table 11-B1 of subsection (e)(11)(B)(i) of this section:

TABLE 11-A1. BEST AVAILABLE TECHNOLOGY FOR DISINFECTION BYPRODUCTS

DISINFECION BYPRODUCT	**BEST AVAILABLE TECHNOLOGY**
TTHM	Enhanced coagulation or enhanced softening or GAC10, with chlorine as the primary and residual disinfectant
HAA5	Enhanced coagulation or enhanced softening or GAC10, with chlorine as the primary and residual disinfectant
Bromate	Control of ozone treatment process to reduce production of bromate
Chlorite	Control of treatment processes to reduce disinfectant demand and control of disinfection treatment processes to reduce disinfectant levels

(ii) Analytical requirements. Systems shall use only the analytical method or methods specified in 40 CFR 141.131, as amended from time to time, to demonstrate compliance with the requirements of subsection (e)(11)(A) of this section.

(iii) Monitoring requirements.

(I) General requirements.

[(ii)] (1) A system shall take all samples during normal operating conditions.

[(iii)] (2) A system may use previously collected data to qualify for reduced monitoring if the data meets the location and frequency requirements of [this subdivision] subsection (e)(11) of this section.

[(iv)A system shall use only the analytical method(s) specified in 40 CFR 141.131 for monitoring under this subdivision.]

[(v)] (3) All samples, including those described in [subclause (iii)] subsection (e)(11)(A)(iii)(I)(2) of this section, shall be analyzed by a department approved laboratory pursuant to [section 19-13- B102(g) of the Regulations of Connecticut State Agencies] subsection (g) of this section. The department may grant an exemption, in writing, for the daily chlorite samples when the chlorite analysis is conducted by a certified treatment operator using a method approved by the department.

[(C)] (II) Disinfection byproducts.

[(i)] (1) [Routine monitoring for] TTHM and HAA5.

(A) Routine monitoring for TTHM and HAA5.

A system shall conduct routine monitoring at the locations and frequencies indicated in the following [table] Table 11-A2 of subsection (e)(11)(A)(iii)(II)(1)(A) of this section:

TABLE 11-A2. ROUTINE MONITORING FREQUENCY FOR TTHM AND HAA5

Type of System	*Minimum Monitoring Frequency*[(1)] 1	*Sample Location in the Distribution System*[(2)] 2
A system using surface water or GWUDI in whole or in part and serving 10,000 or more persons	[Four (4)] 4 samples per quarter per treatment plant	At least [25%] 25 percent of all samples collected each quarter at locations representing maximum residence time. [remaining] Remaining samples taken at locations representative of at least average residence time in the distribution system and representing the entire distribution system[.]
A system using surface water or GWUDI in whole or in part and serving fewer than 10,000 persons	[One (1)] 1 sample per quarter per treatment plant	Location representing maximum residence time
A system using only [groundwater] ground water not under the direct influence of surface water and serving 10,000 or more persons	[One (1)] 1 sample per quarter per treatment plant	Location representing maximum residence time

system using only [groundwater] ground water not under the direct influence of surface water and serving fewer than 10,000 persons	[One (1)] 1 sample per year per treatment plant during the third calendar quarter	Location representing maximum residence time[(3)] 3

NOTES:

[(1)] 1 Multiple wells drawing water from a single aquifer may be considered [one] 1 treatment plant for determining the minimum number of samples required, with written approval from the department.

[(2)] 2 If a system elects to sample more frequently than the minimum required, at least [twenty-five (25)] 25 percent of all samples collected each quarter, including those taken in excess of the required frequency, shall be taken at locations that represent the maximum residence time of the water in the distribution system. The remaining samples shall be taken at locations representative of at least average residence time in the distribution system.

[(3)] 3 If the sample, or average of annual samples if more than [one] 1 sample is taken, exceeds the MCL, the system shall increase monitoring to [one] 1 sample per treatment plant per quarter, taken at a point reflecting the maximum residence time in the distribution system. Systems on increased monitoring may return to routine monitoring if, after at least [one] 1 year of monitoring, their TTHM annual average is 0.060 mg/l and [haa5] HAA5 annual average is <0.045 mg/l and the system is granted approval by the department in writing.

[(ii)] (B) Reduced monitoring for TTHM and HAA5.

(i) A system may reduce monitoring in accordance with the following [table] Table 11-A3 of (e)(11)(A)(iii)(II)(1)(B)(i) of this section with the written approval of the department:

TABLE 11-A3. REDUCED MONITORING FREQUENCY FOR TTHM AND HAA5

Type of System	*Criteria for Monitoring Reduction*[(1)] 1	*Minimum Monitoring Frequency*	*Sample Location in the Distribution System*
A system using surface water or GWUDI in whole or in part and serving at least 10,000 persons	Source water annual average TOC level, before any treatment, <4.0 mg/l; TTHM annual average <0.040 mg/l; and HAA5 annual average <0.030 mg/l	[One (1)] 1 sample per quarter per treatment plant	Location representing maximum residence time
A system using surface water or GWUDI in whole or in part and serving fewer than 10,000 persons	Source water annual average TOC level, before any treatment, <4.0 mg/l; TTHM annual average <0.040 mg/l; and HAA5 annual average <0.030 mg/l	[One (1)] 1 sample per year per treatment plant during the third calendar quarter	Location representing maximum residence time

A system using only [groundwater] ground water not under the direct influence of surface water and serving at least 10,000 persons	TTHM annual average <0.040 mg/l; and HAA5 annual average <0.030 mg/l	[One (1)] 1 sample per year per treatment plant during the third calendar quarter	Location representing maximum residence time
A system using only [groundwater] ground water not under the direct influence of surface water and serving fewer than 10,000 persons	TTHM annual average <0.040 mg/l; and HAA5 annual average <0.030 mg/l[(2)] 2	[One (1)] 1 sample every [three (3)] 3 years per treatment plant during the third calendar quarter[(3)] 3	Location representing maximum residence time

NOTES:

[(1)] 1 A system shall have monitored for at least [one (1)] 1 year.

[(2)] 2 Averages for [two (2)] 2 consecutive years, or TTHM annual average <0.020 mg/l and HAA5 annual average <0.015 mg/l for [one] 1 year.

[(3)] 3 [Three (3)] 3 year cycle begins January 1 following the quarter in which the system qualifies for reduced monitoring.

(ii) A system on a reduced monitoring schedule may remain on that reduced schedule as long as the average of all samples taken in the year (for systems which shall monitor quarterly) or the result of the sample (for systems which shall monitor no more frequently than annually) is no more than 0.060 mg/l and 0.045 mg/l for TTHM and HAA5, respectively. Systems that do not meet these levels shall resume routine monitoring in the quarter immediately following the quarter in which the system exceeds either of these levels. For a system using only [groundwater] ground water not under the direct influence of surface water and serving fewer than 10,000 persons, if either the TTHM annual average is >0.080 mg/l or the HAA5 annual average is >0.060 mg/l, the system shall begin increased monitoring, as indicated in subsection (e)(11)(A)(iii)(II)(1)(A) of this section [19-13-B102(e)(11)(C)(i)], in the quarter immediately following the monitoring period in which the system exceeds 0.080 mg/l or 0.060 mg/l for TTHM or HAA5 respectively.

(C) Monitoring requirements for source water TOC. In order to qualify for reduced monitoring for TTHM and HAA5 under subsection (e)(11)(A)(iii)(II)(1)(B) of this section, surface water and GWUDI systems not monitoring under the provisions of subsection (e)(11)(A)(iii)(IV) of this section shall take monthly TOC samples every 30 days at a location prior to any treatment. In addition to meeting other criteria for reduced monitoring in subsection (e)(11)(A)(iii)(II)(1)(B) of this section, the source water TOC running annual average (RAA) shall be ≤4.0 mg/l (based on the most recent 4 quarters of monitoring) on a continuing basis at each treatment plant to reduce or remain on reduced monitoring for TTHM and HAA5. Once qualified for reduced monitoring for TTHM and HAA5 under subsection (e)(11)(A)(iii)(II)(1)(B) of this section, a system may reduce source water TOC

monitoring to quarterly TOC samples taken every 90 days at a location prior to any treatment.

(D) Systems on a reduced monitoring schedule may remain on that reduced schedule as long as the average of all samples taken in the year (for systems which shall monitor quarterly) or the result of the sample (for systems which shall monitor no more frequently than annually) is no more than 0.060 mg/l and 0.045 mg/l for TTHMs and HAA5, respectively. Systems that do not meet these levels shall resume monitoring at the frequency identified in subsection (e)(11)(A)(iii)(II)(1)(A) of this section (minimum monitoring frequency column) in the quarter immediately following the monitoring period in which the system exceeds 0.060 mg/l or 0.045 mg/l for TTHMs and HAA5, respectively. For systems using only ground water not under the direct influence of surface water and serving fewer than 10,000 persons, if either the TTHM annual average is >0.080 mg/l or the HAA5 annual average is >0.060 mg/l, the system shall go to the increased monitoring identified in subsection (e)(11)(A)(iii)(II)(1)(A) of this section (sample location column) in the quarter immediately following the monitoring period in which the system exceeds 0.080 mg/l or 0.060 mg/l for TTHM or HAA5, respectively.

(2) Chlorite. CWSs and NTNCs using chlorine dioxide, for disinfection or oxidation, shall conduct monitoring for chlorite.

[(iii)] (A) Routine monitoring for chlorite. [A system using chlorine dioxide for disinfection or oxidation, shall conduct monitoring for chlorite. The] A system shall take daily chlorite samples at the entrance to the distribution system and shall also take a [three (3) sample] 3-sample set for chlorite each month in the distribution system. The system shall take [one] 1 sample at each of the following locations: near the first [customer] consumer, at a location representative of average residence time and at a location reflecting maximum residence time in the distribution system. Any additional routine sampling shall be conducted in the same manner (as [three-sample] 3-sample sets, at the specified locations). The system may use the results of additional monitoring conducted according to [subclause (iv) of this subparagraph] subsection (e)(11)(A)(iii)(II)(2)(B) of this section to meet [their] the system's monthly requirement.

[(iv)] (B) Additional monitoring for chlorite. On each day following a routine sample monitoring result that exceeds the chlorite MCL at the entrance to the distribution system, the system [is required to] shall take [three (3)] 3 chlorite distribution system samples at the following locations: as close to the first [customer] consumer as possible, in a location representative of average residence time and as close to the end of the distribution system as possible (reflecting maximum residence time in the distribution system).

[(v)] (C) Reduced monitoring for chlorite.

(i) Routine chlorite monitoring at the entrance to the distribution system [may] shall not be reduced.

(ii) Chlorite monitoring in the distribution system may be reduced to [one three (3) sample] 1 3-sample set per quarter after [one] 1 year of monitoring where no routine individual chlorite sample taken in the distribution system has exceeded the chlorite MCL and the system has not been required to conduct additional monitoring in accordance with [subclause (iv) of this subparagraph] subsection (e)(11)(A)(iii)(II)(2)(B) of this section. The system may remain on the reduced monitoring schedule until either:

[(1)] (a) Any of the [three (3)] 3 individual chlorite samples taken quarterly in the distribution system exceeds the chlorite MCL; or

[(2) the] (b) The system is required to conduct additional monitoring according to [subclause (iv) of this subparagraph] subsection (e)(11)(A)(iii)(II)(2)(B) of this section, at which time the system shall revert to routine monitoring.

(3) Bromate.

[(vi)] (A) Routine monitoring for bromate. [A system] CWSs and NTNCs using ozone, for disinfection or oxidation, in any part of the treatment process shall take [one] 1 bromate sample each month at the entrance to the distribution system for each treatment plant in the system using ozone.

[(vii)] (B) Reduced monitoring for bromate. [A system required to analyze for bromate may reduce monitoring from monthly to once per quarter, if the system demonstrates that the average source water bromide concentration is less than 0.05 mg/l based upon representative monthly bromide measurements for one year. The system may remain on reduced bromate monitoring until the running annual average source water bromide concentration, computed quarterly, is equal to or greater than 0.05 mg/l based upon representative monthly measurements. The system shall continue bromide monitoring to remain on reduced bromate monitoring. If the running annual average source water bromide concentration is equal to or greater than 0.05 mg/l, the system shall resume routine monitoring for bromate in accordance with subclause (vi) of this subparagraph. Public water systems that purchase water from systems that are eligible for reduced bromate monitoring are also eligible for reduced bromate monitoring.] A system required to analyze for bromate may reduce monitoring from monthly to quarterly, if the system's RAA bromate concentration is ≤0.0025 mg/l based on monthly bromate measurements under subsection (e)(11)(A)(iii)(II)(3)(A) of this section for the most recent 4 quarters, with samples analyzed using EPA Method 317.0 Revision 2.0, 326.0 or 321.8. A system that qualified for reduced bromate monitoring prior to April 1, 2009, may remain on reduced monitoring as long as the RAA of quarterly bromate samples is ≤0.0025 mg/l based on samples analyzed using Method 317.0 Revision 2.0, 326.0, or 321.8. If the RAA bromate concentration is >0.0025 mg/l, the system shall resume routine monitoring required by subsection (e)(11)(A)(iii)(II)(3)(A) of this section.

[(viii)] (4) A system required to comply with [this subdivision] subsection

(e)(11)(A)(iii)(II) of this section shall determine [their] the system's minimum monitoring frequency for disinfection byproducts using:

[(I) Their] (A) The system's own sources of water, if any, as well as each seller's source(s) of water, to determine if [they use] the system uses surface water or GWUDI, in whole or in part, or if [they use] the system uses only [groundwater] ground water not under the direct influence of surface water;

[(II) Their] (B) The system's own population, without considering the population of any system that purchases water from or sells water to [their] the system's system; and

[(III)] (C) A sum for the number of treatment plants calculated as the number of treatment plants in [their] the system's own system plus [one (1)] 1 for each applicable system that sells water to [their] the system's system.

[(D)] (III) Disinfectant residuals.

(1) Chlorine and chloramines.

[(i)] (A) Routine monitoring for chlorine and chloramines. [CWS] CWSs and [NTNC] NTNCs that [uses] use chlorine or chloramines in any part of the treatment process shall measure the residual disinfectant level in the distribution system[,] at the same point in the distribution system and at the same time as total coliforms are sampled in accordance with [subdivision (7) of this] subsection (e)(7) of this section. Surface water or GWUDI systems may use the results of [residual disinfectant concentration] RDC sampling conducted under 40 CFR 141.74(c)(3)(i), as amended from time to time, in lieu of taking separate samples.

(B) Reduced monitoring for chlorine and chloramines. Monitoring [may] shall not be reduced.

(2) Chlorine dioxide.

[(ii)] (A) Routine monitoring for chlorine dioxide. [A system using] CWSs, NTNCs, and TNCs that use chlorine dioxide for disinfection or oxidation shall take daily chlorine dioxide samples at the entrance to the distribution system. For any daily sample that exceeds the MRDL, the system shall take chlorine dioxide samples in the distribution system the following day at the locations required by [subclause (iii) of this subparagraph] subsection (e)(11)(A)(iii)(III)(2)(B) of this section, in addition to the sample required at the entrance to the distribution system. Systems that purchase water from a system that is required to conduct additional monitoring shall also comply with [subclause (iii) of this subparagraph] subsection (e)(11)(A)(iii)(III)(2)(B) of this section. [Routine monitoring may not be reduced.]

[(iii)] (B) Additional monitoring for chlorine dioxide. On each day following a routine sample monitoring result that exceeds the MRDL, the system shall take [three (3)] 3 chlorine dioxide distribution system samples. If chlorine dioxide or chloramines

are used to maintain a disinfectant residual in the distribution system, or if chlorine is used to maintain a disinfectant residual in the distribution system and there are no disinfection addition points after the entrance to the distribution system (i.e., no booster chlorination), the system shall take [three (3)] 3 samples as close to the first [customer] consumer as possible, at intervals of at least [six (6)] 6 hours. If chlorine is used to maintain a disinfectant residual in the distribution system and there are one or more disinfection addition points after the entrance to the distribution system (i.e., booster chlorination), the system shall take [one] 1 sample at each of the following locations: as close to the first [customer] consumer as possible, in a location representative of average residence time, and as close to the end of the distribution system as possible (reflecting maximum residence time in the distribution system).

(C) Reduced monitoring for chlorine dioxide. Monitoring shall not be reduced.

[(E)] (IV) Disinfection byproduct precursors.

[(i)] (1) Routine monitoring. [A surface] Surface water or GWUDI [system, which uses] systems that use conventional treatment[,] shall monitor each treatment plant for TOC[,] no later than the point of combined filter effluent turbidity monitoring and representative of the treated water. [The system] Surface water or GWUDI systems that use conventional treatment shall also monitor for TOC in the source water, prior to any treatment, at the same time as monitoring for TOC in the treated water. These samples (source water and treated water) are referred to as paired samples. At the same time as the source water sample is taken, all systems shall monitor for alkalinity in the source water prior to any treatment. [System] Surface water or GWUDI systems that use conventional treatment shall take [one] 1 paired sample and [one] 1 source water alkalinity sample each month for each plant[,] at a time representative of normal operating conditions and influent water quality.

[(ii)] (2) Reduced monitoring. [A] Surface water or GWUDI [system] systems with an average treated water TOC of less than 2.0 mg/l for [two] 2 consecutive years, or less than 1.0 mg/l for [one] 1 year, may reduce monitoring for both TOC and alkalinity to [one] 1 paired sample and [one] 1 source water alkalinity sample for [Each] each plant for each quarter. [The system] Systems shall revert to routine monitoring in the month following the quarter when the annual average treated water TOC is 2.0 mg/l or greater.

(V) Bromide. Systems required to analyze for bromate may reduce bromate monitoring from monthly to once per quarter if the system demonstrates that the average source water bromide concentration is <0.05 mg/l based upon representative monthly measurements for 1 year. The system shall continue bromide monitoring to remain on reduced bromate monitoring.

[(F)] (VI) Monitoring plans. Each system required to monitor under [this subdivision] subsection (e)(11)(A) of this section shall develop and implement a monitoring plan. The system shall maintain the monitoring plan and make it available for inspection by the department and the [general] public [no later than thirty (30) days following the applicable

compliance dates in subparagraph (a) of this subdivision]. [Any] All surface water or GWUDI [system] systems serving more than [1000] 1,000 persons shall submit a copy of the monitoring plan to the department no later than the date of the first report required under [section 19-13-B102(h)(7) of the Regulations of Connecticut State Agencies] subsection (h)(7) of this section. The department may in the department's discretion also require any other system to submit a monitoring plan. A system may only implement a monitoring plan that the department has reviewed and approved. If the department determines that the monitoring plan contains the required elements in subsections (e)(11)(A)(1)(iii)(VI)(1) and (2) of this section, the department may approve such monitoring plan. The department may request a system to provide additional information necessary to aid the department in its review of the monitoring plan, and may require changes to the monitoring plan. After the department's review and approval, the department may require changes in any plan elements. Failure by a system to monitor in accordance with [its] the system's monitoring plan is a monitoring violation. The plan shall include at least the following elements:

[(i)] (1) Specific locations and schedules for collecting samples for any parameters included in [this subdivision] subsection (e)(11)(A) of this section. Sample locations that represent a point of average or maximum residence time for multiple treatment plants may be used to satisfy the requirements of [subparagraph (C) of this subdivision] subsection (e)(11)(A)(iii)(II) of this section for each applicable treatment plant, with the department's written approval; and,

[(ii)] (2) How the system will calculate compliance with [MCL, MRDL,] the MCLs, MRDLs, and treatment techniques.

[(G)] (iv) Compliance requirements.

[(i)] (I) General requirements.

(1) Where compliance is based on [a running annual average] a RAA of monthly or quarterly samples or averages and the system fails to monitor for TTHM, HAA5, or bromate, this failure to monitor [will] shall be treated as a monitoring violation for the entire period covered by the annual average. Where compliance is based on [a [running annual average] a RAA of monthly or quarterly samples or averages and the system's failure to monitor makes it impossible to determine compliance with the MRDL for chlorine and chloramines, this failure to monitor [will] shall be treated as a monitoring violation for the entire period covered by the annual average.

[(ii)] (2) All samples taken and analyzed under the provisions of [this subdivision] subsection (e)(11)(A) of this section shall be included in determining compliance, even if that number is greater than the minimum required.

[(iii)] (3) If, during the first year of monitoring under subsection (e)(11)(A)(iii) of this section, any individual quarter's average will cause the [running annual average] RAA of that system to exceed the MCL for TTHM, HAA5, or bromate, or the MRDL for chlorine or chloramine, the system is out of compliance at the end of that quarter.

[(iv)] (II) Disinfection byproducts.

(1) TTHM and HAA5.

(A) For a system monitoring quarterly, compliance with [MCL] the MCLs in subsection (e)(11)(B)(i) of this section shall be based on [a running annual average] a RAA, computed quarterly, of quarterly averages of all samples collected by the system as prescribed by [this subdivision] subsection (e)(11)(A)(iii)(II)(1) of this section. If a system fails to complete [four (4)] 4 consecutive quarters of monitoring, compliance with the MCL for the last [four (4) quarter] 4-quarter compliance period shall be based on an average of the available data.

(B) For a system monitoring less frequently than quarterly, the system shall demonstrate MCL compliance if the average of samples taken under the provisions of [section 19-13-B102(e)(11)(C)(i)] subsection (e)(11)(A)(iii)(II)(1) of this section do not exceed [any MCL] the MCLs in subsection (e)(11)(B)(i) of this section. If the average of these samples exceeds the MCL, the system shall increase monitoring to once each quarter for each treatment plant and such a system is not in violation of the MCL until it has completed [one (1)] 1 year of quarterly monitoring, unless the result of fewer than [four (4)] 4 quarters of monitoring will cause the [running annual average] RAA to exceed the MCL, in which case the system is in violation at the end of that quarter. Systems required to increase monitoring frequency to quarterly monitoring shall calculate compliance by including the sample which triggered the increased monitoring plus the following [three (3)] 3 quarters of monitoring.

(C) If the running annual arithmetic average of quarterly averages covering any consecutive [four (4) quarter] 4-quarter period exceeds the MCL, the system is in violation of the MCL.

[(v)] (2) Bromate. Compliance shall be based on [a running annual average] a RAA, computed quarterly, of monthly samples (or, for months in which the system takes more than [one] 1 sample, the average of all samples taken during the month) collected by the system as prescribed by subsection (e)(11)(A)(iii)(II)(3) of this section [19-13-B102(e)(11)(C) of the Regulations of Connecticut State Agencies]. If the average of samples covering any consecutive [four-quarter] 4-quarter period exceeds the MCL, the system is in violation of the MCL and shall notify the public pursuant to the procedures for public notification in subsection (i) of this section, in addition to reporting to the department pursuant to subsection (h)(7) of this section. If a system fails to complete [twelve (12)] 12 consecutive [months'] months of monitoring, compliance with the MCL for the last [four-quarter] 4-quarter compliance period shall be based on an average of the available data.

[(vi)] (3) Chlorite. Compliance shall be based on [an arithmetic average] a RAA of each [three-sample] 3-sample set taken in the distribution system as prescribed by [sections 19-13-B102(e)(11)(C)(iii) and (e)(11)(C)(iv) of the Regulations of Connecticut State Agencies] subsections (e)(11)(A)(iii)(II)(2)(A) and (B) of this section. If the [arithmetic] average of any [three (3)] 3 sample set exceeds the MCL, the system is in violation of the

MCL and shall notify the public pursuant to the procedures for public notification in subsection (i) of this section and the department pursuant to subsection (h)(7) of this section.

[(vii)] (III) Disinfectant residuals.

(1) Chlorine and chloramines.

(A) Compliance shall be based on [a running annual average] a RAA, computed quarterly, of monthly averages of all samples collected by the system under [subparagraph (D) of this subdivision] subsection (e)(11)(A)(iii)(III)(1) of this section. If the average of quarterly averages covering any consecutive [four (4) quarter] 4-quarter period exceeds the MRDL, the system is in violation of the MRDL and shall notify the public pursuant to the procedures for public notification in subsection (i) of this section and the department pursuant to subsection (h)(7) of this section.

(B) In cases where systems switch between the use of chlorine and chloramines for residual disinfection during the year, compliance shall be determined by including together all monitoring results of both chlorine and chloramines in calculating compliance. Reports submitted pursuant to [section 19-13-B102(h)(7) of the Regulations of Connecticut State Agencies] subsection (h)(7) of this section shall clearly indicate which residual disinfectant was analyzed for each sample.

[Notwithstanding the MRDL in subparagraph (B) of this subdivision, systems may increase residual disinfectant levels in the distribution system of chlorine or chloramines, but not chlorine dioxide, to a level and for a time necessary to protect public health, to address specific microbiological contamination problems caused by circumstances such as, including but not limited to, distribution line breaks, storm run-off events, source water contamination events, or cross-connection events.]

[(viii)] (2) Chlorine dioxide.

(A) [Tier] Violations requiring tier 1 notice. Compliance shall be based on consecutive daily samples collected by the system under [subparagraph (D) of this subdivision] subsection (e)(11)(A)(iii)(III)(2) of this section. If any daily sample taken at the entrance to the distribution system exceeds the MRDL and, on the following day, [one] 1 (or more) of the [three (3)] 3 samples taken in the distribution system exceed the MRDL, the system is in violation of the MRDL and shall take immediate corrective action to lower the level of chlorine dioxide below the MRDL and shall notify the public pursuant to the procedures for a tier 1 notice in [section 19-13-B102(i)(1) of the Regulations of Connecticut State Agencies] subsection (i)(1) of this section and the department pursuant to subsection (h)(7) of this section. Failure to take samples in the distribution system the day following an exceedance of the chlorine dioxide MRDL at the entrance to the distribution system will also be considered an MRDL violation and the system shall notify the public of the violation in accordance with the procedures for a tier 1 [notices] notice in

[section 19-13-B102(i)(1) of the Regulations of Connecticut State Agencies] subsection (i)(1) of this section and the department pursuant to subsection (h)(7) of this section.

(B) [Tier] Violations requiring tier 2 notice. Compliance shall be based on consecutive daily samples collected by the system under [subparagraph (D) of this subdivision] subsection (e)(11)(A)(iii)(III)(2) of this section. If any [two (2)] 2 consecutive daily samples taken at the entrance to the distribution system exceed the MRDL and all distribution system samples taken are below the MRDL, the system is in violation of the MRDL and shall take corrective action to lower the level of chlorine dioxide below the MRDL at the point of sampling and [will] shall notify the public pursuant to the procedures for a tier 2 notice in [section 19-13-B102(i)(2) of the Regulations of Connecticut State Agencies] subsection (i)(2) of this section and the department pursuant to subsection (h)(7) of this section. Failure to monitor at the entrance to the distribution system the day following an exceedance of the chlorine dioxide MRDL at the entrance to the distribution system is also an MRDL violation and the system shall notify the public of the violation in accordance with the procedures for tier 2 notice in [section 19-13-B102(i)(2) of the Regulations of Connecticut State Agencies] subsection (i)(2) of this section and the department pursuant to subsection (h)(7) of this section.

[(ix)] (IV) Disinfection byproduct precursors. Compliance shall be determined as specified by [section 19-13-B102(j)(11) of the Regulations of Connecticut State Agencies] subsection (j)(11)(C) and (D) of this section. Systems may begin monitoring to determine whether Step 1 TOC removals can be met [twelve (12)] 12 months prior to the compliance date for the system. This monitoring is not required and failure to monitor during this period is not a violation. However, any system that does not monitor during this period, and then determines in the first [twelve (12)] 12 months after the compliance date that it is not able to meet the Step 1 requirements in [section 19-13-B102(j)(11)(B)(i) of the Regulations of Connecticut State Agencies] subsection (j)(11)(B)(i) of this section and shall therefore apply for alternate minimum TOC removal (Step 2) requirements, is not eligible for retroactive approval of alternate minimum TOC removal (Step 2) requirements as allowed pursuant to [section 19-13-B102(j)(11)(B)(ii) of the Regulations of Connecticut State Agencies] subsection (j)(11)(B)(ii) of this section and is in violation. Systems may apply for alternate minimum TOC removal (Step 2) requirements any time after the compliance date. [for] For systems required to meet [step] Step 1 TOC removals, if the value calculated under [Section 19-13-B102(j)(11)(C)(iv) of the Regulations of Connecticut State Agencies] subsection (j)(11)(C)(iv) of this section is less than 1.00, the system is in violation of the treatment technique requirements and shall notify the public pursuant to the procedures for public notification in subsection (i) of this section and the department pursuant to subsection (h)(7) of this section.

(B) MCLs, MCLGs, MRDLs, and MRDLGs for disinfectants.

(i) MCLs and MCLGs. All CWSs and NTNCs shall comply with the MCLs for disinfectant byproducts in Table 11-B1 of subsection (e)(11)(B)(i) of this section.

TABLE 11-B1. DISINFECTION BYPRODUCTS AND THEIR LIMITS

DISINFECTION BYPRODUCTS	MCL (MG/L)[1]	MCLG (MG/L)
Bromate	0.010	ZERO
Chlorite	1.0	0.8
Haloacetic acids (five)	0.060	N/A
-dichloroacetic acid	*	ZERO
-monochloroacetic acid	*	0.07
-trichloroacetic acid	*	0.02
Total Trihalomethanes	0.080	N/A
-Bromodichloromethane	*	ZERO
-Bromoform	*	ZERO
-Chloroform	*	0.07
-Dibromochloromethane	*	0.06

N/A Not applicable.

* No individual MCL for TTHM and HAA5 constituents

[1] A system that serves ≥ 50,000 people shall comply with these MCLs as a LRAA. Systems that serve < 50,000 shall comply with these MCLs as a RAA until the date specified in Table 11-C1 of subsection (e)(11)(C)(i)(III) of this section. After the dates specified in Table 11-C1 of subsection (e)(11)(C)(i)(III) of this section, systems that serve < 50,000 people shall comply with these MCLs as a LRAA.

(ii) MRDLs and MRDLGs. All CWSs and NTNCs shall comply with the MRDLs for disinfectant residuals in Table 11-B2 of subsection (e)(11)(B)(ii) of this section. In addition, TNCs shall comply with the MRDL for chlorine dioxide, if the TNC uses chlorine dioxide as a disinfectant or oxidant somewhere in the treatment process.

TABLE 11-B2. DISINFECTANTS AND THEIR LIMITS

DISINFECTANT RESIDUAL	MRDL (MG/L)	MRDLG (MG/L)
Chlorine	4.0 (as Cl_2)	4 (as Cl_2)
Chloramine	4.0 (as Cl_2)	4 (as Cl_2)
Chlorine Dioxide[1]	0.8 (as ClO_2)	0.8(as ClO_2)

[1] The MRDL and MRDLG for chlorine dioxide apply to systems that use chlorine dioxide as a disinfectant or oxidant somewhere in the treatment process.

(C) Monitoring requirements for the Stage 2 disinfection byproducts requirement.

(i) General requirements.

(I) Subsection (e)(11)(C) of this section establishes monitoring and other requirements for achieving compliance with MCLs based on LRAA for TTHM and HAA5, and for achieving compliance with the MRDLs for chlorine and chloramine for certain consecutive systems.

(II) Applicability.

A system is subject to the requirements of subsection (e)(11)(C) of this section if the system is a CWS or a NTNC that uses a primary or residual disinfectant other than ultraviolet light or delivers water that has been treated with a primary or residual disinfectant other than ultraviolet light.

(III) Schedule. A system that serves ≥ 50,000 people shall comply with the requirements in subsection (e)(11)(C) of this section. Systems that serve < 50,000 people shall comply with the requirements in subsection (e)(11)(C) of this section in accordance with the schedule in Table 11-C1 of subsection (e)(11)(C)(i)(III) of this section based on the system's type.

TABLE 11-C1. COMPLIANCE DATES

If the system is this type of system	The system shall comply with subsection (e)(11)(C) of this section monitoring by:[1]
Systems that are not part of a combined distribution system and systems that serve the largest population in the combined distribution system	
(1) System serving 10,000 – 49,999 people	October 1, 2013.
(2) System serving < 10,000 people	October 1, 2013 if no Cryptosporidium monitoring is required under 40 CFR 141.701(a)(4), as amended from time to time, OR October 14, 2014 if Cryptosporidium monitoring is required under 40 CFR 141.701(a)(4), as amended from time to time.
Other systems that are part of a combined distribution system	
(3) Consecutive system or wholesale system	At the same time as the system with the earliest compliance date in the combined distribution system.

[1] A system may submit an application to the department requesting approval of up to an additional 24 months for compliance with MCLs and operational evaluation levels if the system requires capital improvements to comply with a MCL. Such application shall be submitted in accordance with subsection (t) of this section and shall specify the capital improvements required to comply with a MCL.

(4) A system's monitoring frequency is specified in subsection (e)(11)(C)(ii)(I)(2) of this section.

(A) If a system that serves ≥ 50,000 people is required to conduct quarterly monitoring and the department approved under 40 CFR 141.620(c) up to an additional 24 months for compliance with MCLs and operational evaluation levels because the system requires capital improvements to comply with an MCL, then the system shall begin monitoring in the first full calendar quarter that includes the department-approved compliance date.

(B) If a system that serves ≥ 100,000 people is required to conduct monitoring at a frequency that is less than quarterly and the department approved under 40 CFR 141.620(c) up to an additional 24 months for compliance with MCLs and

operational evaluation levels because the system requires capital improvements to comply with an MCL, then the system shall begin monitoring no later than 12 months after the department-approved compliance date.

(C) If a system that serves 50,000 to 99,999 people is required to conduct monitoring at a frequency that is less than quarterly, the system shall begin monitoring in the calendar month in the system's IDSE report approved by the department under 40 CFR 141.601 or 40 CFR 141.602 or the calendar month identified in the monitoring plan approved by the department under 40 CFR 141.622 no later than October 1, 2013, unless the department approved under 40 CFR 141.620(c) up to an additional 24 months for compliance with MCLs and operational evaluation levels because the system requires capital improvements to comply with an MCL, in which case the system shall begin monitoring no later than 12 months after the department-approved compliance date.

(D) If a system that serves < 50,000 people is required to conduct quarterly monitoring, the system shall begin monitoring in the first full calendar quarter that includes the compliance date in subsection (e)(11)(C)(i)(III) of this section.

(E) If a system that serves < 50,000 people is required to conduct monitoring at a frequency that is less than quarterly, the system shall begin monitoring in the calendar month in the system's IDSE report approved by the department under 40 CFR 141.601 or 40 CFR 141.602 or the calendar month identified in the monitoring plan approved by the department under 40 CFR 141.622 no later than 12 months after the compliance date in subsection (e)(11)(C)(i)(III) of this section.

(5)(A) If a system that serves ≥ 100,000 people is required to conduct quarterly monitoring, the system shall make compliance calculations at the end of each quarter (or earlier if the LRAA calculated based on fewer than 4 quarters of data would cause the MCL to be exceeded regardless of the monitoring results of subsequent quarters), unless the department approved under 40 CFR 141.620(c) up to an additional 24 months for compliance with MCLs and operational evaluation levels because the system requires capital improvements to comply with an MCL, in which case the system shall make compliance calculations at the end of the fourth calendar quarter that follows the department-approved compliance date, and at the end of each subsequent quarter (or earlier if the LRAA calculated based on fewer than 4 quarters of data would cause the MCL to be exceeded regardless of the monitoring results of subsequent quarters).

(B) If a system that serves 50,000 to 99,999 people is required to conduct quarterly monitoring, the system shall make compliance calculations at the end of the calendar quarter that begins on October 1, 2013, unless the department approved under 40 CFR 141.620(c) up to an additional 24 months for compliance with MCLs and operational evaluation levels because the system requires capital improvements to comply with an MCL, in which case the system shall make compliance calculations at the end of the fourth calendar quarter that follows the department-approved compliance date, and at the end of each subsequent quarter (or earlier if

the LRAA calculated based on fewer than 4 quarters of data would cause the MCL to be exceeded regardless of the monitoring results of subsequent quarters).

(C) If a system that serves < 50,000 people is required to conduct quarterly monitoring, the system shall make compliance calculations at the end of the fourth calendar quarter that follows the compliance date in subsection (e)(11)(C)(i)(III) of this section, and at the end of each subsequent quarter (or earlier if the LRAA calculated based on fewer than 4 quarters of data would cause the MCL to be exceeded regardless of the monitoring results of subsequent quarters).

(D) If a system that serves ≥ 50,000 people is required to conduct monitoring at a frequency that is less than quarterly, the system shall make compliance calculations pursuant to 40 CFR 141.620(c)(7), unless the department approved under 40 CFR 141.620(c) up to an additional 24 months for compliance with MCLs and operational evaluation levels because the system requires capital improvements to comply with an MCL, in which case the system shall make compliance calculations beginning with the first compliance sample taken after the department-approved compliance date. If a system that serves < 50,000 people is required to conduct monitoring at a frequency that is less than quarterly, the system shall make compliance calculations beginning with the first compliance sample taken after the compliance date in subsection (e)(11)(C)(i)(III) of this section.

(6) For purposes of the schedule in Table 11-C1 of subsection (e)(11)(C)(i)(III) of this section, the term "combined distribution system" does not include consecutive systems that receive water from a wholesale system only on an emergency basis or receive only a small percentage of water from a wholesale system. The term "combined distribution system" also does not include wholesale systems that deliver water to a consecutive system only on an emergency basis or deliver only a small percentage of water to a consecutive system that has its own water.

(IV) Monitoring and compliance.

(1) Systems required to monitor quarterly. To comply with subsection (e)(11)(C) of this section MCLs for TTHM and HAA5 in Table 11-B1 of subsection (e)(11)(B)(i) of this section, a system shall calculate LRAAs for TTHM and HAA5 using monitoring results collected under subsection (e)(11)(C) of this section and determine that each LRAA does not exceed the MCL. If a system fails to complete 4 consecutive quarters of monitoring, the system shall calculate compliance with the MCL based on the average of the available data from the most recent 4 quarters. If a system takes more than 1 sample per quarter at a monitoring location, the system shall average all samples taken in the quarter at that location to determine a quarterly average to be used in the LRAA calculation.

(2) Systems required to monitor yearly or less frequently. To determine compliance with the MCLs for TTHM and HAA5 in Table 11-B1 of subsection (e)(11)(B)(i) of this section, a system shall determine that each sample taken is less than the MCL. If any sample exceeds the MCL, the system shall comply with the requirements of subsection

(e)(11)(C)(vi) of this section. If no sample exceeds the MCL, the sample result for each monitoring location is considered the LRAA for that monitoring location.

(V) Violation. A system is in violation of the monitoring requirements for each quarter that a monitoring result would be used in calculating an LRAA, if the system fails to monitor for that quarter.

(VI) Best available technologies.

(1) Table 11-C2 of subsection (e)(11)(C)(i)(VI)(1) of this section establishes the best technology, treatment techniques, or other means available for achieving compliance with the MCLs for TTHM and HAA5 as an LRAA identified in Table 11-B1 of subsection (e)(11)(B)(i) of this section for all systems that disinfect their source water:

TABLE 11-C2. BEST AVAILABLE TECHNOLOGY FOR DISINFECTION BYPRODUCTS

DISINFECTION BYPRODUCT	BEST AVAILABLE TECHNOLOGY
TTHM and HAA5	Enhanced coagulation or enhanced softening, plus GAC10; or nanofiltration with a molecular weight cutoff ≤ 1000 Daltons; or GAC20

(2) Table 11-C3 of subsection (e)(11)(C)(i)(VI)(2) of this section establishes the best technology, treatment techniques, or other means available for achieving compliance with the MCLs for TTHM and HAA5 as an LRAA identified in Table 11-B1 of subsection (e)(11)(B)(i) of this section for consecutive systems that buy or otherwise receive disinfected water:

TABLE 11-C3. CONSECUTIVE SYSTEM BEST AVAILABLE TECHNOLOGY

DISINFECTION BYPRODUCT	BEST AVAILABLE TECHNOLOGY
TTHM and HAA5	Systems serving ≥ 10,000: Improved distribution system and storage tank management to reduce residence time, plus the use of chloramines for disinfectant residual maintenance.
TTHM and HAA5	Systems serving < 10,000: Improved distribution system and storage tank management to reduce residence time.

(ii) Routine monitoring.

(I) Monitoring.

(1) A system that serves ≥ 50,000 people with an IDSE report approved by the department under 40 CFR 141.605 shall monitor at the locations and during the months identified in the department-approved IDSE report, unless the department approved under 40 CFR 141.620(c) up to an additional 24 months for compliance with MCLs and operational evaluation levels because the system requires capital improvements to

comply with an MCL, in which case the system shall not begin monitoring at the locations and during the months identified in the department-approved IDSE report until that date. A system that serves < 50,000 people with an IDSE report approved by the department under 40 CFR 141. 605 shall begin monitoring at the locations and during the months identified in the department-approved IDSE report following the schedule in Table 11-C1 of subsection (e)(11)(C)(i)(III) of this section. If a system received department approval of the system's 40/30 certification under 40 CFR 141.603 serves fewer than 500 people, has taken TTHM and HAA5 samples under subsection (e)(11)(A) of this section and was granted by the department a very small system waiver under 40 CFR 141.604 or is a NTNC serving <10,000 people, the system shall monitor at the location or locations and on the dates identified in the system's department-approved monitoring plan in subsection (e)(11)(A)(iii)(VI) of this section, updated as required by subsection (e)(11)(C)(iii) of this section.

(2) A system shall monitor at no fewer than the number of locations identified in Table 11-C4 of subsection (e)(11)(C)(ii)(I)(2) of this section.

TABLE 11-C4. COMPLIANCE MONITORING LOCATIONS AND FREQUENCIES

SOURCE WATER TYPE	POPULATION SIZE CATEGORY	MONITORING FREQUENCY[1]	DISTRIBUTON SYSTEM MONITORING LOCATION TOTAL PER MONITORING PERIOD[2]
Surface Water and GWUDI	<500 people	Per Year	2
	500 – 3,300 people	Per Quarter	2
	3,301 – 9,999 people	Per Quarter	2
	10,000 – 49,999 people	Per Quarter	4
	50,000 – 249,999 people	Per Quarter	8
	250,000 – 999,999 people	Per Quarter	12
	1,000,000 – 4,999,999 people	Per Quarter	16
	≥ 5,000,000 people	Per Quarter	20
Ground Water	<500 people	Per Year	2
	500 – 9,999 people	Per Year	2
	10,000 – 99,999 people	Per Quarter	4
	100,000 – 499,999 people	Per Quarter	6
	≥ 500,000 people	Per Quarter	8

[1] All systems shall monitor during the month of highest disinfection byproducts concentrations.

[2] Systems on quarterly monitoring shall take dual sample sets every 90 days at each monitoring location, except for surface water or GWUDI systems serving 500-3,300 people. Ground water systems serving 500-9,999 people on annual monitoring shall take dual sample sets at each monitoring location. All other systems on annual monitoring and surface water or GWUDI systems serving 500-3,300 people are required to take individual TTHM and HAA5 samples (instead of a dual sample set) at the locations with the highest TTHM and HAA5 concentrations, respectively. For systems serving fewer than 500 people, only 1 location with a dual sample set per monitoring period is needed if the highest TTHM and HAA5 concentrations occur at the same location, and during the same month.

(3) If a system is an undisinfected system that begins using a disinfectant other than UV light, the system shall consult with the department to identify compliance monitoring

locations for subsection (e)(11)(C) of this section. A system shall then develop a monitoring plan under subsection (e)(11)(C)(iii) of this section that includes those monitoring locations and submit such monitoring plan to the department for approval in accordance with subsection (t) of this section.

(II) Analytical methods. A system shall use an approved method listed in 40 CFR 141.131, as amended from time to time, for TTHM and HAA5 analyses in subsection (e)(11)(C) of this section. Analyses shall be conducted by an environmental laboratory approved by the department under section 19a-29a of the Connecticut General Statutes.

(iii) Subsection (e)(11)(C) of this section monitoring plan.

(I)(1) A system shall develop and implement a monitoring plan to be kept on file for department and public review. The monitoring plan shall not be implemented until the system has received department approval of the monitoring plan. The monitoring plan shall be completed no later than the date the system conducts its initial monitoring under subsection (e)(11)(C) of this section and shall be submitted to the department in accordance with subsection (t) of this section. The monitoring plan shall contain the following elements:.

(A) Monitoring locations;

(B) Monitoring dates;

(C) Compliance calculation procedures; and,

(D) Monitoring plans for any other systems in the combined distribution system if the department has permitted reduced monitoring.

(2) If a system was not required to submit an IDSE report under 40 CFR 141.601 or 40 CFR 141.602 and does not have sufficient monitoring locations under subsection (e)(11)(A) of this section to identify the required number of compliance monitoring locations under subsection (e)(11)(C) of this section, the system shall identify in the monitoring plan additional locations by alternating selection of locations representing high TTHM levels and high HAA5 levels until the required number of compliance monitoring locations have been identified. A system shall also provide in the monitoring plan the rationale for identifying the locations as having high levels of TTHM or HAA5. If a system has more monitoring locations under subsection (e)(11)(A) of this section than required for compliance monitoring under subsection (e)(11)(C) of this section, the system shall identify in the monitoring plan which locations the system will use for compliance monitoring under subsection (e)(11)(C) of this section by alternating selection of locations representing high TTHM levels and high HAA5 levels until the required number of compliance monitoring locations have been identified under subsection (e)(11)(C) of this section.

(II) If a system is a surface water or GWUDI system serving > 3,300 people, the system shall submit a copy of the system's monitoring plan in accordance with subsection (t) of this section to the department for approval prior to the date the system conducts the system's

initial monitoring under subsection (e)(11)(C) of this section, unless the system's IDSE report approved by the department contains all the information required by subsection (e)(11)(C)(iii) of this section.

(III) A system may submit to the department for approval a revised monitoring plan in accordance with subsection (t) of this section if there are changes in treatment, distribution system operations and layout (including new service areas), or other factors that may affect TTHM or HAA5 formation, or for department-approved reasons after consultation with the department regarding the need for changes and the appropriateness of changes. The department may approve a revised monitoring plan in which the system changed monitoring locations only if the system in the revised monitoring plan replaced existing compliance monitoring locations with the lowest LRAA with new locations that reflect the current distribution system locations with expected high TTHM or HAA5 levels. The department may in the department's discretion also require modifications in the system's monitoring plan. A system shall not monitor in accordance with the revised monitoring plan unless the department has approved the revised monitoring plan. If a system is a surface water or a GWUDI system serving > 3,300 people, the system shall submit a copy of the system's modified monitoring plan to the department for approval in accordance with subsection (t) of this section prior to the date the system is required to comply with the revised monitoring plan.

(iv) Reduced monitoring.

(I) A system may reduce monitoring to the level specified in Table 11-C5 of subsection (e)(11)(C)(iv)(I) of this section any time the LRAA is ≤0.040 mg/l for TTHM and ≤0.030 mg/l for HAA5 at all monitoring locations. The system may only use data collected under the provisions of subsection (e)(11)(A) or subsection (e)(11)(C) of this section to qualify for reduced monitoring. In addition, the source water annual average TOC level, before any treatment, shall be ≤4.0 mg/l at each treatment plant treating surface water or GWUDI, based on monitoring conducted under either subsection (e)(11)(A)(iii)(II)(1)(C) or (e)(11)(A)(iii)(IV) of this section.

TABLE 11-C5. REDUCED MONITORING FREQUENCIES

SOURCE WATER TYPE	POPULATION SIZE CATEGORY	MONITORING FREQUENCY[1]	DISTRIBUTON SYSTEM MONITORING LOCATION PER MONITORING PERIOD
Surface Water or GWUDI	<500		Monitoring shall not be reduced.
	500 – 3,300 people	Per year	1 TTHM and 1 HAA5 sample: 1 at the location and during the quarter with the highest TTHM single measurement; 1 at the location and during the quarter with the highest HAA5 single measurement; 1 dual sample set per year if the highest TTHM and HAA5 measurements occurred at the same location and quarter.
	3,301 – 9,999 people	Per year	2 dual sample sets: 1 at the location and during the quarter with the highest TTHM single measurem[illegible] 1 at the location and during the quarter with the highest HAA5 single measurement.

	10,000 – 49,999 people	Per quarter	2 dual sample sets at the locations with the highest TTHM and highest HAA5 LRAAs.
	50,000 – 249,999 people	Per quarter	4 dual sample sets at the locations with the 2 highest TTHM and 2 highest HAA5 LRAAs.
	250,000 – 999,999 people	Per quarter	6 dual sample sets at the locations with the 3 highest TTHM and 3 highest HAA5 LRAAs.
	1,000,000 – 4,999,999 people	Per quarter	8 dual sample sets at the locations with the 4 highest TTHM and 4 highest HAA5 LRAAs.
	≥5,000,000 people	Per quarter	10 dual sample sets at the locations with the 5 highest TTHM and 5 highest HAA5 LRAAs.
Ground water	<500 people	Every third year	1 TTHM and 1 HAA5 sample: 1 at the location and during the quarter with the highest TTHM single measurement; 1 at the location and during the quarter with the highest HAA5 single measurement; 1 dual sample set per year if the highest TTHM and HAA5 measurements occurred at the same location and quarter.
	500 – 9,999 people	Per year	1 TTHM and 1 HAA5 sample: 1 at the location and during the quarter with the highest TTHM single measurement; 1 at the location and during the quarter with the highest HAA5 single measurement; 1 dual sample set per year if the highest TTHM and HAA5 measurements occurred at the same location and quarter.
	10,000 – 99,999 people	Per year	2 dual sample sets: 1 at the location and during the quarter with the highest TTHM single measurement, 1 at the location and during the quarter with the highest HAA5 single measurement.
	100,000 – 499,999 people	Per quarter	2 dual sample sets at the locations with the highest TTHM and highest HAA5 LRAAs.
	≥ 500,000 people	Per quarter	4 dual sample sets at the locations with the 2 highest TTHM and 2 highest HAA5 LRAAs.

[1] Systems on quarterly monitoring shall take dual sample sets every 90 days.

(II) A system may remain on reduced monitoring as long as the TTHM LRAA is ≤0.040 mg/l and the HAA5 LRAA is ≤0.030 mg/l at each monitoring location (for systems with quarterly reduced monitoring) or each TTHM sample is ≤0.060 mg/l and each HAA5 sample is ≤0.045 mg/l (for systems with annual or less frequent monitoring). In addition, the source water annual average TOC level, before any treatment, shall be ≤4.0 mg/l at each treatment plant treating surface water or GWUDI based on monitoring conducted under either subsection (e)(11)(A)(iii)(II)(1)(C) or (e)(11)(A)(iii)(IV) of this section.

(III) If the LRAA based on quarterly monitoring at any monitoring location exceeds either 0.040 mg/l for TTHM or 0.030 mg/l for HAA5 or if the annual (or less frequent) sample at any location exceeds either 0.060 mg/l for TTHM or 0.045 mg/l for HAA5, or if the source water annual average TOC level, before any treatment, is >4.0 mg/l at any treatment plant treating surface water or GWUDI, a system shall resume routine monitoring under

subsection (e)(11)(C)(ii) of this section or begin increased monitoring if subsection (e)(11)(C)(vi) of this section applies.

(IV) The department in the department's discretion may return a system to routine monitoring if a system:

(1) Violated the MCL for either TTHM or HAA5 at any monitoring location;

(2) Activated a new disinfection treatment system;

(3) Changed disinfection practices; or,

(4) Reactivated an inactive disinfection treatment system.

(v) Additional requirements for consecutive systems. If a system is a consecutive system that does not add a disinfectant but delivers water that has been treated with a primary or residual disinfectant other than ultraviolet light, the system shall comply with analytical and monitoring requirements for chlorine and chloramines in 40 CFR 141.131(c), as amended from time to time, and subsection (e)(11)(A)(iii)(III)(1l) of this section, the compliance requirements in subsection (e)(11)(A)(iv)(III)(1) of this section, and report monitoring results under subsection (h)(7)(A)(i)(I) of this section.

(vi) Conditions requiring increased monitoring.

(I) If a system is required to monitor at a particular location annually or less frequently than annually under subsections (e)(11)(C)(ii) or (iv) of this section, the system shall increase monitoring to dual sample sets once per quarter (taken every 90 days) at all locations if a TTHM sample is >0.080 mg/l or a HAA5 sample is >0.060 mg/l at any location.

(II) A system is in violation of the MCL when the LRAA exceeds the MCLs in Table 11-B1 of subsection (e)(11)(B)(i) of this section, calculated based on 4 consecutive quarters of monitoring (or the LRAA calculated based on fewer than 4 quarters of data if the MCL would be exceeded regardless of the monitoring results of subsequent quarters). A system is in violation of the monitoring requirements for each quarter that a monitoring result would be used in calculating an LRAA, if the system fails to monitor that quarter.

(III) A system may return to routine monitoring once the system has conducted increased monitoring for at least 4 consecutive quarters and the LRAA for every monitoring location is ≤0.060 mg/l for TTHM and ≤0.045 mg/l for HAA5.

(vii) Operational evaluation levels.

(I) The operational evaluation level for TTHM and HAA5 is the sum of the 2 previous quarterly results plus twice the current quarter's result, divided by 4. Each quarter, a system shall calculate the TTHM and HAA5 operational evaluation levels for each monitoring location.

(II) A system has exceeded the operational evaluation level at any monitoring location where the sum of the 2 previous quarters' TTHM results plus twice the current quarter's TTHM result, divided by 4 to determine an average, exceeds 0.080 mg/l, or where the sum of the 2 previous quarters' HAA5 results plus twice the current quarter's HAA5 result, divided by 4 to determine an average, exceeds 0.060 mg/l.

(III) (1) If a system exceeds the operational evaluation level, the system shall conduct an operational evaluation and submit a written report of the evaluation to the department for approval in accordance with subsection (t) of this section no later than 90 days after being notified of the analytical result that causes the system to exceed the operational evaluation level. The written report shall be made available to the public upon request.

(2) The system's operational evaluation shall include an examination of system treatment and distribution operational practices, including storage tank operations, excess storage capacity, distribution system flushing, changes in sources or source water quality, and treatment changes or problems that may contribute to TTHM and HAA5 formation and what steps could be considered to minimize future exceedences.

(A) A system may submit an application to the department for approval requesting that the department permit the system to limit the scope of the system's evaluation if the system is able to identify the cause of the operational evaluation level exceedance. Such application shall include the reason or reasons why the system is requesting to limit the scope of the system's evaluation, including the identification of the cause of the operational evaluation level exceedance, and shall be submitted in accordance with subsection (t) of this section. The system shall keep the department-approved application with the completed report.

(B) The system's request to limit the scope of the evaluation does not extend the time in subsection (e)(11)(C)(vii)(III)(1) of this section by which the system is required to submit to the department for approval the written report.

(viii) Requirements for remaining on reduced TTHM and HAA5 monitoring based on subsection (e)(11)(A) of this section results. A system that serves < 50,000 people may remain on reduced monitoring after the dates identified in Table 11-C1 of subsection (e)(11)(C)(i)(III) of this section for compliance with subsection (e)(11)(C) of this section if the system has a 40/30 certification approved by the department under 40 CFR 141.603 or is a system that serves fewer than 500 people, has taken TTHM and HAA5 samples under subsection (e)(11)(A) of this section and was granted a very small system waiver by the department under 40 CFR 141.604 and the system meets the reduced monitoring criteria in subsection (e)(11)(C)(iv)(I) of this section, and does not change or add monitoring locations from those used for compliance monitoring under subsection (e)(11)(A) of this section. If the system's monitoring locations under subsection (e)(11)(C) of this section differ from the system's monitoring locations under subsection (e)(11)(A) of this section, the system that serves < 50,000 people shall not remain on reduced monitoring after the dates identified in Table 11-C1 of subsection (e)(11)(C)(i)(III) of this section for compliance with subsection (e)(11)(C) of this section.

(ix) Requirements for remaining on increased TTHM and HAA5 monitoring based on subsection (e)(11)(A) of this section results.

If a system was on increased monitoring under subsection (e)(11)(A)(iii)(II)(1) of this section, the system shall remain on increased monitoring until the system qualifies for a return to routine monitoring under subsection (e)(11)(C)(vi)(III) of this section. A system that serves ≤ 50,000 shall conduct increased monitoring under subsection (e)(11)(C)(vi) of this section at the monitoring locations in the system's department-approved monitoring plan under subsection (e)(11)(C)(iii) of this section beginning at the date identified in Table 11-C1 of subsection (e)(11)(C)(i)(III) of this section for compliance with subsection (e)(11)(C) of this section and remain on increased monitoring until the system qualifies for a return to routine monitoring under subsection (e)(11)(C)(vi)(III) of this section. A system that serves ≥ 50,000 people shall remain on increased monitoring until the system qualifies for a return to routine monitoring under subsection (e)(11)(C)(vi)(III) of this section.

Sec. 15. Section 19-13-B102(e) of the Regulations of Connecticut State Agencies is amended by adding subdivision (12) as follows:

(NEW) (12) Ground water source microbial monitoring and analytical requirements.

(A) Applicability. Subsection (e)(12) of this section applies to all systems that use ground water except for systems that combine all of the system's ground water with surface water or GWUDI prior to treatment pursuant to subsections (j)(2) through (j)(4), inclusive, of this section.

(B) General requirements. Systems subject to subsections (e)(7)(E), (e)(12) and (j)(14) of this section shall comply with the following requirements:

(i) Sanitary survey information requirements for all ground water systems as described in subsection (e)(7)(E) of this section.

(ii) Microbial source water monitoring requirements for the ground water systems that do not treat all of the system's ground water to at least 99.99 percent (4 log) treatment of viruses using inactivation, removal, or a department-approved combination of 4 log virus inactivation and removal before or at the first consumer as described in subsection (e)(12)(C) of this section.

(iii) Treatment technique requirements, described in subsection (j)(14) of this section, that apply to ground water systems that have fecally contaminated source waters, as determined by source water monitoring conducted under subsection (e)(12)(C) of this section. A ground water system with fecally contaminated source water subject to the treatment technique requirements of subsections (e)(12) and (j)(14) of this section shall implement one or more of the following corrective action options:

(I) Correct all significant deficiencies;

(II) Provide an alternate source of water;

(III) Eliminate the source of contamination; or

(IV) Provide treatment that reliably achieves at least 4 log treatment of viruses using inactivation, removal, or a department-approved combination of 4 log virus inactivation and removal before or at the first consumer for the ground water source.

(iv) Ground water systems that provide at least 4 log treatment of viruses using inactivation, removal, or a department-approved combination of 4 log virus inactivation and removal before or at the first consumer of a ground water source are required to conduct compliance monitoring at that source to demonstrate treatment effectiveness, as described in subsection (j)(14)(B) of this section.

(v) If requested by the department, ground water systems shall provide the department with any existing information that will enable the department to perform a HSA.

(vi) Regardless of whether the system is a CWS or a NTNC, if such system provides at least 4 log treatment of viruses using inactivation, removal, or a department-approved combination of 4

log virus inactivation and removal before or at the first consumer, such system shall employ, contract with or otherwise utilize an operator certified pursuant to subsection 25-32-9 of the Regulations of Connecticut State Agencies.

(C) Triggered source water monitoring.

(i) General requirements.

(I) E. coli is the fecal indicator for triggered source water monitoring under subsection (e)(12)(C) of this section, unless the department in the department's discretion specifies another fecal indicator that shall be used.

(II) A ground water system shall conduct triggered source water monitoring if the following conditions exist:

(1) The system does not provide at least 4 log treatment of viruses using inactivation, removal, or a department approved combination of 4 log virus inactivation and removal before or at the first consumer for each ground water source that the department has approved under subsection (j)(14)(B)(i) or (ii) of this section; and,

(2) The system is notified that a sample collected under subsection (e)(7)(A) or (B) of this section is total coliform-positive and the sample is not invalidated by the department under subsection (e)(7)(F) of this section.

(ii) Sampling requirements. A ground water system shall collect, within 24 hours of notification of a total coliform-positive sample collected under subsection (e)(7)(A) or (B) of this section, at least 1 ground water source sample from each ground water source in use at the time the total coliform-positive sample was collected under subsection (e)(7)(A) or (B) of this section, except as provided in subsection (e)(12)(C)(ii)(II) of this section. For purposes of subsection (e)(12)(C)(ii) of this section, the term "in use" means when water from an active source of supply is, or could possibly be, at the monitoring site at the time the sample was collected under subsection (e)(7)(A) or (B) of this section.

(I) The department may extend the 24-hour time limit if the system cannot collect the ground water source sample within 24 hours due to circumstances beyond the system's control. A system shall submit an application to the department in accordance with subsection (t) of this section requesting an extension beyond the 24-hour time limit, specifying the circumstances beyond the system's control that prevent such system from collecting a ground water source sample within 24 hours of notification of the total coliform-positive sample. The system shall file such application with the department within 24 hours of being notified of the total coliform-positive sample. The department shall not grant an extension of more than 72 hours, thereby approving the system to collect the ground water source sample within 96 hours of notification of the total coliform-positive sample, unless the system in the system's application provides evidence that the system's contract laboratory is closed for the weekend or a holiday and the closure will prevent such system from collecting the ground water source sample within 96 hours of being notified of the total coliform-positive sample.

(II) If approved by the department, systems with more than 1 ground water source may meet the requirements of subsection (e)(12)(C)(ii) of this section by sampling a representative ground water source or sources. A system shall submit an application to the department in accordance with subsection (t) of this section requesting approval to meet the requirements of subsection (e)(12)(C)(ii) of this section by sampling a representative ground water source or sources. Systems shall include with the application a triggered source water monitoring plan that identifies all of the ground water sources that are representative of each distribution system monitoring site in the system's sample siting plan under subsection (e)(7)(D)(i) of this section and that the system intends to use for representative sampling under subsection (e)(12)(C)(ii)(II) of this section. Such plan shall include all of the ground water sources that supply each of the distribution system monitoring sites in the system's sample siting plan under subsection (e)(7)(D)(i) of this section under normal operating conditions. A system shall not meet the requirements of subsection (e)(12)(C)(ii) of this section by sampling a representative ground water source or sources until the system has received department approval of the system's application.

(III) A ground water system serving 1,000 people or fewer may use a sample collected from a ground water source to meet both the requirements of subsection (e)(7)(G)(i) of this section and to satisfy the monitoring requirements of subsection (e)(12)(C)(ii) of this section if the department-approved fecal indicator under subsection (e)(12)(C)(i)(I) of this section is E. coli. If the sample collected from the ground water source is E. coli positive, the system shall comply with the requirements of subsection (e)(12)(C)(iii) of this section. The system shall also comply with the requirements of subsection (e)(7)(G) of this section, if applicable.

(iii) Additional requirements. If the department does not require corrective action under subsection (j)(14)(A) of this section for a fecal indicator-positive source water sample collected under subsections (e)(12)(C)(ii) or (e)(12)(C)(iv) of this section that is not invalidated under subsection (e)(12)(F) of this section or if the department does not invalidate a fecal indicator-positive source water sample collected under subsections (e)(12)(D)(ii) or (e)(12)(I) of this section, the system shall collect 5 additional source water samples from the same source within 24 hours of being notified of a fecal indicator-positive sample collected under subsections (e)(12)(C)(ii), (e)(12)(C)(iv), (e)(12)(D)(ii) or (e)(12)(I) of this section. If a system is unable to collect the additional source water samples within 24 hours of being notified of the fecal indicator-positive sample, the system shall submit an application to the department requesting an extension beyond the 24-hour time limit. Such application shall include documentation demonstrating that the system's contract laboratory is closed for the weekend or a holiday and the closure will prevent such system from collecting the ground water source sample within 24 hours of being notified of the fecal indicator-positive sample, and shall be submitted in accordance with subsection (t) of this section. The system shall file such application with the department within 24 hours of being notified of the fecal indicator-positive sample. The department shall not grant an extension of more than 72 hours, thereby approving the system to collect the ground water source sample within 96 hours of notification of the fecal indicator-positive sample.

(iv) Consecutive and wholesale systems.

(I) In addition to the other requirements in subsection (e)(12)(C) of this section, a consecutive ground water system that has a total coliform-positive sample collected under subsections (e)(7)(A) or (B) of this section shall notify the wholesale system or systems within 24 hours of being notified of the total coliform-positive sample.

(II) In addition to the other requirements in subsection (e)(12)(C) of this section, a wholesale ground water system shall comply with the following requirements:

(1) A wholesale ground water system that receives notice from a consecutive system it serves that a sample collected under subsections (e)(7)(A) or (B) of this section is total coliform-positive shall, within 24 hours of being notified, collect a sample from the wholesale ground water system's ground water source or sources under subsection (e)(12)(C)(ii) of this section and analyze the sample for a fecal indicator in accordance with the analytical methods in subsection (e)(12)(E) of this section.

(2) If the sample collected under subsection (e)(12)(C)(iv)(II)(1) of this section is fecal indicator-positive, the wholesale ground water system shall notify all consecutive systems served by that ground water source of the fecal indicator source water positive within 24 hours of being notified of the ground water source sample monitoring result and shall meet the requirements of subsection (e)(12)(C)(iii) of this section.

(v) Exceptions to the triggered source water monitoring requirements. A ground water system is not required to comply with the source water monitoring requirements of subsection (e)(12)(C) of this section if any of the following conditions exist:

(I) The department determines that the total coliform-positive sample collected under subsection (e)(7)(A) or (B) of this section is caused by a previously-documented distribution system deficiency. A system shall submit an application to the department in accordance with subsection (t) of this section requesting a determination from the department whether the total coliform-positive sample collected under subsection (e)(7)(A) or (B) of this section was caused by a distribution system deficiency. The application shall include documentation demonstrating that the distribution system deficiency that caused the total coliform-positive sample was previously documented. Documentation that the distribution system deficiency was previously documented includes, but is not limited to, distribution system sampling results, repair records, facility inspection reports, cross connection surveys, and documentation of areas of low pressure. The system shall submit such application to the department before the total coliform-positive sample result is received by the department;

(II) The department determines that the total coliform-positive sample collected under subsection (e)(7)(A) or (B) of this section was collected at a location in the distribution system that has a condition that will cause total coliform-positive samples. A system shall submit an application to the department in accordance with subsection (t) of this section requesting a determination from the department whether the total coliform-positive sample collected under subsection (e)(7)(A) or (B) of this section was collected at a location in the distribution system that has a condition that will cause total coliform-positive samples. Such application shall include documentation demonstrating that the condition in the distribution system will cause a total coliform-positive sample. Documentation that a

condition in the distribution system caused the total coliform-positive sample includes, but is not limited to, documentation of recurring bio-film problems. The system shall submit such application to the department before the total coliform-positive sample result is received by the department; or

(III)The system provides at least 4 log treatment of viruses using inactivation, removal, or a department approved combination of 4 log virus inactivation and removal before or at the first consumer for each ground water source that the department has approved under subsection (j)(14)(B)(i) or (ii) of this section.

(D) Assessment source water monitoring.

(i) The department shall specify the fecal indicator or indicators for which the system shall sample for assessment source water monitoring under subsection (e)(12)(D) of this section.

(ii) The department may in the department's discretion require a ground water system to conduct assessment source water monitoring in accordance with the requirements in subsection (e)(12)(D)(iii) of this section if the system meets one of the following criteria:

(I) A ground water source, based on the ground water source's stabilized pumping rate, does not meet the separating distances from sources of pollution that cause or may cause fecal contamination, including, but not limited to systems for the disposal or storage of sewage, sewer lines, and stables, pigpens, chicken houses or other structures or locations where fecal matter is allowed to accumulate, in Table 12-D1 of subsection (e)(12)(D) of this section:

TABLE 12-D1. SEPARATING DISTANCE REQUIREMENTS BASED ON REQUIRED WITHDRAWAL RATE OF GROUND WATER SOURCE

STABALIZED PUMPING RATE OF GROUND WATER SOURCE	SEPARATING DISTANCES FROM THE GROUND WATER SOURCE TO SOURCES OF POLLUTION
Under 10 gallons per minute (gpm)	75 feet
10 to 50 gpm	150 feet
>50 gpm	200 feet

(II) A ground water source is currently disinfected by a system using chlorine, UV, ozone or some other disinfectant or disinfectants, the department has not approved the treatment under subsection (j)(14)(B)(i) or (ii) of this section, and the system does not have a department-approved source water fecal indicator monitoring plan under subsection (e)(12)(I) of this section.

(III) A ground water system has 2 or more MCL violations for total coliform within a 12 month period. If the department determines that the ground water system's MCL violations for total coliform are caused by a previously-documented distribution system deficiency, then the system shall not be required to conduct assessment source water monitoring under subsection (e)(12)(D)(ii) of this section. A ground water system shall submit an

application to the department in accordance with subsection (t) of this section requesting a determination from the department whether the MCL violations for total coliform were caused by a previously-documented distribution system deficiency. Such application shall include documentation demonstrating that the distribution system deficiency that caused the MCL violations for total coliform was previously documented. Documentation demonstrating that the distribution system deficiency was previously documented includes, but is not limited to, distribution system sampling results, repair records, facility inspection reports, cross connection surveys, and documentation of areas of low pressure.

(IV) The department determines after an investigation that the ground water source or sources are susceptible to contamination by microbial pathogens, based on a HSA.

(V) A ground water system's 5 samples collected in accordance with subsection (e)(12)(C)(iii) of this section were all fecal indicator-negative.

(VI) A ground water system discontinues the system's department-approved 4 log treatment of viruses using inactivation, removal, or a department approved combination of 4 log virus inactivation and removal before or at the first consumer for a ground water source.

(iii) If required by the department under subsection (e)(12)(D)(ii) of this section to conduct assessment source water monitoring on one or more ground water sources, the ground water system shall conduct such monitoring in accordance with the requirements in subsections (e)(12)(D)(iii)(I) through (V) of this section. A ground water system conducting assessment source water monitoring may use a triggered source water sample collected under subsection (e)(12)(C) of this section to meet the requirements of subsection (e)(12)(D)(iii) of this section.

(I) Collection of a total of 12 ground water source samples that represent each month the system provides ground water to the public. If a system provides ground water to the public for less than 12 months, the system shall collect samples during the months in which the system provides ground water to the public until the system has collected a minimum of 12 samples. If the department determines that there is a continued risk of introduction of fecal contamination into the ground water the system provides to the public or that one or more of conditions in subsections (e)(12)(D)(ii)(I) through (V), inclusive, of this section continues to exist, the department may require the system to continue to conduct assessment source water monitoring after the system has collected a total of 12 ground water source samples. If the department determines that a frequency other than the collection of 1 sample in each month the system provides ground water to the public will provide a more accurate representation of the water quality of the ground water source or sources or if the system operates for only part of the year, the department may modify the frequency of the sampling. For purposes of subsection (e)(12)(D)(iii)(I) of this section, a system operates for only part of the year if the system is in operation for less than 12 months out of a year.

(II) Collection of samples from each active source of supply;

(III) Collection of a standard sample volume of at least 100 ml for fecal indicator analysis regardless of the fecal indicator or analytical method used;

(IV) Analysis of all ground water source samples using one of the analytical methods listed in subsection (e)(12)(E)(ii) of this section for the presence of E. coli, enterococci, or coliphage; and

(V) Collection of ground water source samples at a location prior to any treatment of the ground water source.

(iv) The department may at any time in the department's discretion terminate the requirement that a system conduct assessment source water monitoring. If the department requires the system to take corrective action under subsection (j)(14)(A)(i) of this section at a source at which the system is conducting assessment source water monitoring, the system shall not be required to continue source water assessment monitoring for that ground water source unless directed to do so by the department.

(v) A ground water system that has received department-approval of the system's treatment under subsection (j)(14)(B)(i) or (ii) of this section because the system provides at least 4 log treatment of viruses using inactivation, removal, or a department approved combination of 4 log virus inactivation and removal before or at the first consumer for a specified ground water source, shall not be required by the department to conduct assessment source water monitoring under subsection (e)(12)(D) of this section for the specified ground water source. If the system subsequently discontinues the department-approved 4 log treatment of viruses using inactivation, removal, or a department approved combination of 4 log virus inactivation and removal before or at the first consumer for a specified ground water source after receiving approval from the department under subsection (j)(14)(C) of this section, the department may in the department's discretion require the system to conduct assessment source water monitoring under subsection (e)(12)(D)(ii) of this section for that ground water source. A system that discontinues 4 log treatment of viruses is subject to the triggered source water monitoring requirements of subsection (e)(12)(C) of this section and analytical methods requirements in subsection (e)(12)(E) of this section.

(E) Source water monitoring analytical methods.

(i) A ground water system subject to the source water monitoring requirements of subsection (e)(12) of this section shall collect a standard sample volume of at least 100 ml for fecal indicator analysis regardless of the fecal indicator or analytical method used.

(ii) A ground water system shall analyze all ground water source samples collected under subsection (e)(12) of this section using one of the analytical methods listed in 40 CFR 141.402(c)(2), as amended from time to time, or one of the alternative testing methods listed in 40 CFR 141, Subpart C, Appendix A, as amended from time to time, for the presence of E. coli, enterococci, or coliphage.

(F) Invalidation of a fecal indicator-positive ground water source sample.

(i) A ground water system may submit an application to the department in accordance with subsection (t) of this section requesting invalidation of a fecal indicator-positive ground water source sample collected under subsection (e)(12)(C) of this section. Such application shall include documentation demonstrating compliance with one or more of the conditions in

subsections (e)(12)(F)(i)(I) or (II) of this section. The department may invalidate a fecal indicator-positive ground water source sample collected under subsection (e)(12)(C) of this section only if the system satisfies one of the following conditions:

(I) The system submits to the department a written notice from the laboratory that improper sample analysis occurred; or

(II) The system submits to the department substantial evidence that the fecal indicator-positive ground water source sample is not related to source water quality and the department determines and documents in writing that such substantial evidence exists. Substantial evidence shall include, but is not limited to, documentation, such as photographs and operator and system reports, of defects or damage to the system that caused water that is not representative of the source to be collected at the dedicated source water tap.

(ii) If the department invalidates a fecal indicator-positive ground water source sample, the ground water system shall collect another source water sample under subsection (e)(12)(C) of this section within 24 hours of being notified by the department of the department's approval of the system's application submitted under subsection (e)(12)(F)(i) of this section and have the sample analyzed for the same fecal indicator using the analytical methods in subsection (e)(12)(E) of this section. The department may extend the 24-hour time limit if the system cannot collect the ground water source sample within 24 hours due to circumstances beyond the system's control. A system shall submit an application to the department requesting an extension beyond the 24-hour time limit. Such application shall include an explanation with supporting documentation of the circumstances beyond the system's control that prevent such system from collecting a ground water source sample within 24 hours of notification of the department's approval of the system's application submitted under subsection (e)(12)(F)(i) of this section, and shall be submitted in accordance with subsection (t) of this section. The department shall receive such application from the system within 24 hours of the system's notification of the department's approval of the system's application submitted under subsection (e)(12)(F)(i) of this section. The department shall not grant an extension of more than 72 hours, thereby approving the system to collect the ground water source sample within 96 hours of notification of the department's approval of the system's application submitted under subsection (e)(12)(F)(i) of this section, unless the system in the system's application provides evidence that the system's contract laboratory is closed for the weekend or a holiday and the closure will prevent such system from collecting the ground water source sample within 96 hours of being notified of the department's approval of the system's application submitted under subsection (e)(12)(F)(i) of this section.

(G) Sampling location. Any ground water source sample required under subsection (e)(12)(C) of this section shall be collected at a location prior to any treatment of the ground water source unless the department approves a sampling location after treatment. If a system wants to collect a ground water source sample at a sampling location after treatment, the system shall submit an application to the department requesting approval of that sampling location in accordance with subsection (t) of this section.

(H) New sources. A ground water system that places a new ground water source into service shall conduct assessment source water monitoring in accordance with the requirements in subsections (e)(12)(D)(iii)(II) through (V) of this section. The system shall collect and have analyzed 1 source

sample before the new ground water source is used to provide water to the public. If directed by the department, the system shall continue assessment source water monitoring in accordance with the requirements in subsection (e)(12)(D)(iii) of this section.

(I) Source water fecal indicator monitoring plan. If a system currently disinfects a ground water source or sources using chlorine, UV, ozone or some other disinfectant or disinfectants, but such treatment has not been approved by the department under subsection (j)(14)(B)(i) or (ii) of this section, the department shall not require the system to conduct assessment source water monitoring under subsection (e)(12)(D)(ii)(II) of this section if the system has a department-approved source water fecal indicator monitoring plan and such system samples in accordance with such source water fecal indicator monitoring plan. To obtain approval of a source water fecal indicator monitoring plan, a system shall submit the plan to the department for approval in accordance with subsection (t) of this section. Such plan shall include information on the location, sampling technique and protocols, and frequency of sampling, the methodology used for the analysis of the samples collected, and the format and timing of the system's submission of sampling results. For purposes of subsection (e)(12)(I) of this section, the term "source water fecal indicator monitoring plan" shall mean a plan prepared by a system that identifies the ground water source or sources the system will sample, the frequency with which the system will sample such sources, the location at which such sampling shall occur, which location shall be prior to any treatment and in a location that excludes from sampling water from storage tanks or from the distribution system, and that provides information on the system's submission of sampling results to the department.

(J) Any system that collects a sample under subsections (e)(12)(D) or (e)(12)(I) of this section that is fecal indicator-positive shall collect 5 additional source water samples from the same source in accordance with subsection (e)(12)(C)(iii) of this section. If any of the 5 additional source water samples collected in accordance with subsection (e)(12)(C)(iii) of this section are fecal indicator-positive, the system shall implement one or more corrective actions in accordance with subsection (j)(14)(A) of this section.

(K) Public notification. A ground water system with a ground water source sample collected under subsections (e)(12)(C) or (D) of this section that is fecal indicator-positive and that is not invalidated under subsection (e)(12)(F) of this section, including consecutive systems served by a ground water source, shall conduct public notification under subsection (i)(1) of this section.

(L) Monitoring violations. Failure to meet the requirements of subsections (e)(12)(C) through (I), inclusive, of this section is a monitoring violation and requires the ground water system to provide public notification under subsection (i)(3) of this section.

Sec. 16. Section 19-13-B102(g) of the Regulations of Connecticut State Agencies is amended to read as follows:

(g) **Laboratory and operating tests.** [The water] Water samples taken to conform with the monitoring requirements of [these regulations must] this section shall be analyzed and reported to the [public water] system by a laboratory [approved] issued a certificate of approval by the department pursuant to section 19a-29a of the Connecticut General Statutes and certified by the department for the parameters tested. Laboratory techniques shall conform to those approved by the [federal environmental protection agency] EPA. The department may grant an exemption from this

requirement in writing for [chlorine] disinfectant residuals, pH, temperature, turbidity, fluoride, but only for fluoride samples that are taken and analyzed under subsection (e)(7)(L) of this section, and color when the analysis is conducted by a certified water treatment plant operator using a method approved by the department. Continuous analyzers may be used provided the instruments used are approved by the department and are maintained by a certified water treatment plant operator or technical personnel employed by [an environmental] a laboratory [approved] that has a certificate of approval that was issued by the department [under] pursuant to section [25-40] 19a-29a of the Connecticut General Statutes.

Sec. 17. Section 19-13-B102(h)(1) through (5) of the Regulations of Connecticut State Agencies are amended to read as follows:

(1) A system that has exceeded the MCL for total coliforms or a ground water system that has collected a source water sample under subsections (e)(12)(C) or (e)(12)(D) of this section that is fecal indicator-positive shall report the violation or the fecal indicator-positive sample in writing to the department and the local director of health of each city, town, borough, or district served by the system no later than the end of the next business day after [it] the system learns of the violation or fecal indicator-positive sample, and [notify] shall provide notice to the public in accordance with subsection (i) of this section.

(2) A system that has failed to comply with a monitoring requirement[, pursuant to subsections 19-13-B102] under subsections (e)(6) and (e)(7) of [the Regulations of Connecticut State Agencies,] this section shall report the monitoring violation in writing to the department within [ten (10)] 10 days after the system discovers the violation, and [notify] shall provide notice to the public in accordance with subsection (i) of this section.

(3) Except where a different reporting period is specified in this section, [the supplier of water must] a system shall report to the department and the local director of health of each city, town, borough, or district served by the system within [forty-eight (48)] 48 hours the failure to comply with any established MCL.

(4) [The] A system shall [ensure that the department receives a] report to the department no later than [nine (9)] 9 calendar days following the end of each month the results of samples that are collected during such month in compliance with the monitoring requirements of this section. The report shall be in a format and manner prescribed by the department and shall contain the results of required samples that are collected during the month in compliance with [Section 19-13-B102 of the Regulations of Connecticut State Agencies] monitoring requirements of this section.

(5) Lead and copper. All [water] systems shall report all of the following information to the department in accordance with subsection (h)(5) of this section. Unless otherwise indicated, the provisions of subsection (h)(5) of this section apply to CWSs and NTNCs.

(A) Reporting requirements for tap water monitoring for lead and copper and for water quality parameter monitoring.

(i) Unless the department has specified a more frequent reporting requirement, a [water] system shall report the information specified in [this subparagraph] subsection (h)(5)(A)(i) of this section for all tap water samples specified in subsection (e)(8) of this section [19-13-B102

(e)(8) of the Regulations of Connecticut State Agencies] and for all water quality parameter samples specified in subsection (e)(9) of this section [19-13- B102 (e)(9) of the Regulations of Connecticut State Agencies] no later than [nine (9)] 9 calendar days following the end of each applicable monitoring period specified in [sections 19-13-B102(e)(8) and 19-13-B102(e)(9) of the Regulations of Connecticut State Agencies:] subsections (e)(8) and (9) of this section. For monitoring periods with a duration less than 6 months, the end of the monitoring period is the last date samples can be collected during that period as specified in subsections (e)(8) and (e)(9) of this section.

[(i)] (I) The results of all tap water samples for lead and copper including the location of each site and the criteria under subsection (e)(8)(A) of this section under which the site was selected for the system's sampling pool; upon request of the department, a certification that each first-draw sample collected by the [water] system is [one (1)] 1 liter in volume and, has stood motionless in the service line, or in the interior plumbing of a sampling site, for at least [six (6)] 6 hours; where residents collected samples, a certification that each tap water sample collected by the residents was taken after the [water] system informed them of proper sampling procedures specified in subsection (e)(8)(B)(ii) of this section [19-13-B102(e)(8)(B)(ii) of the Regulations of Connecticut State Agencies];

[(ii)] (II) Documentation for each tap water lead or copper sample for which the [water] system requests invalidation pursuant to subsection (e)(8)(F)(ii) of this section [19-13-B102(e)(8)(I)(i) of the Regulations of Connecticut State Agencies];

[(iii)] (III) The 90th percentile lead and copper concentrations measured from among all lead and copper tap water samples collected during each monitoring period (calculated in accordance with subsection (j)(6)(B)(iii) of this section [19-13-B102(j)(6)(B)(iii) of the Regulations of Connecticut State Agencies]);

[(iv)] (IV) With the exception of initial tap sampling conducted pursuant to subsection (e)(8)(D)(i) of this section [19-13-B102(e)(8)(D) of the Regulations of Connecticut State Agencies], the system shall designate any site which was not sampled during previous monitoring periods, and include an explanation of why sampling sites have changed;

[(v)] (V) The results of all tap water samples for pH, and where applicable, alkalinity, calcium, conductivity, temperature, and orthophosphate or silica collected under subsection (e)(9)(B) through (E) of this section [sections 19-13-B102(e)(9)(B) through (E) of the Regulations of Connecticut State Agencies];

[(vi)] (VI) The results of all samples collected at the entry point(s) to the distribution system for applicable water quality parameters under [sections 19-13-B102(e)(9)(B) through (E) of the Regulations of Connecticut State Agencies] subsection (e)(9)(B) through (E) of this section; and

(VII) The results of all water quality parameter samples collected under subsection (e)(9)(C) through (F) of this section during each 6 month monitoring period specified in subsection (e)(9)(D) of this section within the first 9 calendar days following the end of the monitoring period unless the department has specified a more frequent reporting requirement.

[(vii)] (ii) For a [non-transient non-community water system] NTNC, or a [community water system whose operation mandates continuous daily flow, such as a prison or hospital] CWS meeting the criteria of subsection (i)(6)(B)(vii) of this section, that does not have enough taps that can provide first-draw samples, the system shall identify, in writing, each site that did not meet the [six (6)] 6 hour minimum standing time and the length of standing time for that particular substitute sample collected pursuant to subsection (e)(8)(B)(v) of this section [19-13-B102(e)(8)(B)(v) of the Regulations of Connecticut State Agencies] and include this information with the lead and copper tap water sample results required to be submitted pursuant to [subclause (i) of this subparagraph] subsection (h)(5)(A)(i) of this section.

(iii) At a time specified by the department, or if no specific time is designated by the department, then as early as possible prior to the addition of a new source or any long-term change in water treatment, a system deemed to have optimized corrosion control under subsection (j)(7)(B)(iii) of this section or a system subject to reduced monitoring pursuant to subsection (e)(8)(D)(iv) of this section, shall submit an application to the department requesting approval of the addition of a new source or long-term change in water treatment. Such application shall be submitted in accordance with subsection (t) of this section and shall include a description of the long-term change in water treatment or addition of the new source. The system's addition of a new source or long-term change in water treatment shall be approved by the department before it is implemented by the system. Examples of long-term changes in water treatment include, but are not limited to, the addition of a new treatment process or modification of an existing treatment process. Examples of modifications of an existing treatment process include, but are not limited to, switching secondary disinfectants, switching coagulants (e.g., alum to ferric chloride), and switching corrosion inhibitor products (e.g., orthophosphate to blended phosphate). Long-term changes in water treatment may include dose changes to existing chemicals if the system is planning long-term changes to its finished water pH or residual inhibitor concentration. Long-term treatment changes in water treatment do not include chemical dose fluctuations associated with daily raw water quality changes.

(B) Source water reporting requirements:

(i) A [water] system shall report the sampling results for all source water samples collected in accordance with subsection (e)(10) of this section [19-13-B102(e)(10) of the Regulations of Connecticut State Agencies] within the first [ten (10)] 10 calendar days following the end of each source water monitoring period (i.e., annually, per compliance period, per compliance cycle) specified in [subsection(e)(10)(A)] subsection (e)(10)(A) through (D) of this section.

(ii) With the exception of the first round of source water sampling conducted pursuant to subsection (e)(10)(B) of this section [19-13-B102(e)(10)(B) of the Regulations of Connecticut State Agencies], the system shall specify any site which was not sampled during previous monitoring periods, and include an explanation of why the sampling point has changed.

(C) Corrosion control treatment reporting requirements. By the applicable dates under subsection (j)(7) of this section [19-13-B102(j)(7) of the Regulations of Connecticut State Agencies], [systems] a system shall report the following information to the department:

(i) For systems demonstrating that [they have] the system has already optimized corrosion

control, information required in subsection (j)(7)(B) of this section [19-13-B102(j)(7)(B) of the Regulations of Connecticut State Agencies];

(ii) For systems required to optimize corrosion control, [their] the system's recommendation regarding optimal corrosion control treatment under subsection (j)(8)(A) of this section [19-13- B102(j)(8)(A) of the Regulations of Connecticut State Agencies];

(iii) For systems required to evaluate the effectiveness of corrosion control treatments under subsection (j)(8)(C) of this section [19-13-B102(j)(8)(C) of the Regulations of Connecticut State Agencies], the information required by [that subparagraph] subsection (j)(8)(C) of this section; and

(iv) For systems required to install optimal corrosion control approved by the department under subsection (j)(8)(D) of this section [19-13-B102(j)(8)(D) of the Regulations of Connecticut State Agencies], a letter certifying that the system has completed installing that treatment.

(D) Source water treatment reporting requirements. [;] By the applicable dates in subsection (j)(9) of this section [19-13-B102(j)(9) of the Regulations of Connecticut State Agencies], systems shall [provide] report the following information to the department:

(i) If required under subsection (j)(9)(B)(i) of this section [19-13-B102(j)(9)(B)(i) of the Regulations of Connecticut State Agencies], [their] the system's proposal regarding source water treatment; and

(ii) For systems required to install source water treatment under subsection (j)(9)(B)(ii) of this section [19-13-B102(j)(9)(B)(ii) of the Regulations of Connecticut State Agencies], a letter certifying that the system has completed installing the treatment approved by the department within [twenty four (24)] 24 months after the department approved the treatment.

(E) Lead service line replacement reporting requirements. [Systems] A system shall report the following information to the department to demonstrate compliance with the requirements of subsection (j)(10) of this section [19-13-B102(j)(10) of the Regulations of Connecticut State Agencies]:

(i) [Within twelve (12)] No later than 12 months after the end of the monitoring period in which a system exceeds the lead action level in sampling referred to in subsection (j)(10)(A) of this section [19-13-B102(j)(10)(A) of the Regulations of Connecticut State Agencies], the system shall [demonstrate] submit in writing to the department [that it has conducted] documentation demonstrating that a material evaluation was conducted under subsection (e)(8)(A) of this section, including, but not [necessarily] limited to, the evaluation in subsection (e)(8)(A)(i) of this section [19-13-B102(e)(8)(A)(i) of the Regulations of Connecticut State Agencies], [to identify] a document identifying the initial number of lead service lines in [its] the system's distribution system at the time the system exceeded the lead action level, and [shall provide the department with] the system's schedule for annually replacing at least [seven] 7 percent [(7%)] of the initial number of lead service lines in [its] the system's distribution system.

(ii) [Within twelve (12)] No later than 12 months after the end of the monitoring period in which a system exceeds the lead action level in sampling referred to in subsection (j)(10)(A) of this

section [19-13-B102(j)(10)(A) of the Regulations of Connecticut State Agencies], and every [twelve (12)] 12 months thereafter, the system shall demonstrate in writing to the department that the system has either:

(I) [replaced] Replaced in the previous [twelve (12)] 12 months at least [seven] 7 percent [(7%)] of the initial lead service lines or a greater number of lines specified by the department under subsection (j)(10)(E) of this section [19-13-B102(j)(10)(E) of the Regulations of Connecticut State Agencies] in [its] the system's distribution system; [,] or [conducted]

(II) Conducted sampling that demonstrates that the lead concentration in all service line samples from individual [line(s),taken] line(s), taken pursuant to subsection (e)(8)(B)(iii) of this section [19-13-B102(e)(8)(B)(iii) of the Regulations of Connecticut State Agencies], is less than or equal to 0.015 mg/l. In such cases, the total number of lines replaced [and] or [those] that meet the criteria in subsection (j)(10)(C) of this section, [19-13-B102(j)(10)(C) of the Regulations of Connecticut State Agencies equals] or both, shall equal at least [seven] 7 percent [(7%)] of the initial number of lead lines identified under [subparagraph (A) of this subdivision] subsection (h)(5)(E)(i) of this section or the [number] percentage of lines specified by the department under subsection (j)(10)(E) of this section [19-13- B102(j)(10)(E) of the Regulations of Connecticut State Agencies].

(iii) The [letter] written documentation submitted annually to the department by the system under [subparagraph (E)(ii) of this subdivision] subsection (h)(5)(E)(ii) of this section shall contain the following information: [the]

(I) The number of lead service lines that were scheduled to have been replaced during the previous year of the system's replacement schedule; [the]

(II) The number and location of each lead service line replaced during the previous year of the system's replacement schedule; [if] and

(III) If measured, the water lead concentration and location of each lead service line sampled, the sampling method, and the date of sampling.

(iv) Any system which collects lead service line samples following partial lead service line replacement, required by subsection (j)(10) of this section [19-13-B102(j)(10) of the Regulations of Connecticut State Agencies], shall report the results to the department no later than [nine (9)] 9 calendar days following the end of the month in which the system receives the laboratory results, or as specified by the department. Systems shall also report any additional information as specified by the department, in a time and manner prescribed by the department, to verify that all partial lead service line replacement activities have taken place.

(F) Public education program reporting requirements.

(i) Any [water] system that is subject to the public education requirements in subsection (i)(6) of this section [19-13-B102(i)(6) of the Regulations of Connecticut State Agencies] shall, no later than [nine (9)] 9 calendar days after the end of each period in which the system is required to perform public education tasks in accordance with [40 CFR 141.85(c)] subsection (i)(6)(B) of

this section, send written documentation to the department that contains:

[(i)] (I) A demonstration that the system has delivered the public education materials that meet the content requirements in [paragraphs (a) to (b) inclusive, of 40 CFR 141.85] subsection (i)(6)(A) of this section and the delivery requirements in [40 CFR 141.85(c)] subsection (i)(6)(B) of this section; and

[(ii)] (II) A list of all the newspapers, radio stations, television stations, and facilities and organizations to which the system delivered public education materials during the period in which the system was required to perform public education tasks.

(ii) No later than 3 months following the end of the monitoring period, each system shall mail a sample copy of the consumer notification of tap results to the department along with a certification that the notification has been distributed in a manner consistent with the requirements of subsection (i)(6)(C) of this section.

(G) Reporting of additional monitoring data. Any system that collects sampling data in addition to that required by [this] subsection (h)(5) shall report the results to the department by the end of the applicable monitoring period under [sections 19-13-B102(e)(8) through (10) of the Regulations of Connecticut State Agencies] subsections (e)(8) and (e)(9) of this section during which the samples are collected.

Sec. 18. Section 19-13-B102(h)(6)(B)(iii) of the Regulations of Connecticut State Agencies is amended to read as follows:

(iii) Each system, upon discovering that a waterborne disease outbreak potentially attributable to that [water] system has occurred, shall report that occurrence to the department as soon as possible, but no later than by the end of the next business day. If at any time the combined filtered water turbidity exceeds [one (1)] 1 NTU, the system shall inform the department as soon as possible, but no later than the end of the next business day. If at any time the residual falls below 0.2 [mg/L] mg/l in the water entering the distribution system, the system shall notify the department as soon as possible, but no later than by the end of the next business day. The system also shall notify the department by the end of the next business day whether the residual was restored to at least 0.2 [mg/L] mg/l within [four (4)] 4 hours from the time of discovery of insufficient chlorine residual.

Sec. 19. Section 19-13-B102(h)(7) of the Regulations of Connecticut State Agencies is amended to read as follows:

(7) Reporting [and recordkeeping] requirements [--] for disinfectants and disinfection byproducts.

(A) Disinfectant residual, disinfection byproduct, and disinfection byproduct precursor information collected under subsection (e)(11)(A) of this section [19-13-B102(e) of the Regulations of Connecticut State Agencies] shall be reported to the department no later than [nine (9)] 9 calendar days after the end of each monitoring period in which samples were collected.

[(A)] (i) Disinfectants.

[(i)] (I) A system monitoring for chlorine or chloramines as required by subsection

(e)(11)(A)(iii)(III)(1)(A) of this section [19-13-B102(e)(11)(D)(i) of the Regulations of Connecticut State Agencies] shall report:

[(I)] (1) The number of samples taken during each month of the last quarter;

[(II)] (2) The monthly arithmetic average of all samples taken in each month for the last 12 months;

[(III)] (3) The arithmetic average of all monthly averages for the last 12 months; and

[(IV)] (4)Whether, based on subsection (e)(11)(A)(iv) of this section [19-13-B102(e)(11)(G)], the MRDL was violated.

[(ii)] (II) A system monitoring for chlorine dioxide as required by [sections 19- 13-B102(e)(11)(D)(ii) and (iii) of the Regulations of Connecticut State Agencies] subsections (e)(11)(A)(iii)(III)(1)(A) and (e)(11)(A)(iii)(III)(2)(A) of this section shall report:

[(I)] (1) The dates, results, and locations of samples taken during the last quarter;

[(II)] (2) Whether, based on subsection (e)(11)(A)(iv) of this section [19-13-B102(e)(11)(G)], the MRDL was violated;

[(III)] (3) Whether the MRDL was violated in any [two] 2 consecutive daily samples; and

[(IV)] (4) Whether the resulting violation was a tier 1 or tier 2 notice.

[(B)] (ii) Disinfection byproducts. A system monitoring for disinfection byproducts as required by subsection (e)(11)(A)(iii)(II) of this section [19- 13-B102(e)(11)(C) of the Regulations of Connecticut State Agencies] shall report the following information to the department: [.]

[(i)] (I) A system monitoring for TTHM and HAA5 on a quarterly or more frequent basis shall report:

[(I)] (1) The number of samples taken during the last quarter;

[(II)] (2) The location, date, and result of each sample taken in the last quarter;

[(III)] (3) The arithmetic average of all samples taken in the last quarter;

[(IV)] (4) The annual arithmetic average of the quarterly arithmetic averages for the last [four (4)] 4 quarters; and

[V)] (5) Whether, based on subsection (e)(11)(A)(iv) of this section [19-13-B102(e)(11)(G)], the MCL was violated.

[(ii)] (II) A system monitoring for TTHM and HAA5 less frequently than quarterly (but at least annually) shall report:

[(I)] (1) The number of samples taken during the last monitoring period;

[(II)] (2) The location, date, and result of each sample taken during the last monitoring period;

[(III)] (3) The arithmetic average of all samples taken over the last year; and

[(IV)] (4) Whether, based on subsection (e)(11)(A)(iv) of this section [19-13-B102(e)(11)(G)], the MCL was violated.

[(iii)] (III) A system monitoring for TTHM and HAA5 less frequently than annually shall report the location, date, and result of each sample taken as well as whether, based on subsection (e)(11)(A)(iv) of this section [19-13-B102(e)(11)(G)], the MCL was violated.

[(iv)] (IV) A system monitoring for chlorite shall report:

[(I)] (1) The number of entry point samples taken each month for the last [three] 3 months;

[(II)] (2) The location, date, and result of each sample (both entry point and distribution system) taken during the last quarter;

[(III)] (3) For each month in the reporting period, the [individual] arithmetic [averages] average of all samples taken in each [three (3) sample] 3 samples set taken in the distribution system; and

[(IV)] (4) Whether, based on subsection (e)(11)(A)(iv) of this section [19-13-B102(e)(11)(G)], the MCL was violated, [and] in which month it was violated, and how many times it was violated each month.

[(v)] (V) A system monitoring for bromate shall report:

[(I)] (1) The number of samples taken during the last quarter;

[(II)] (2) The location, date, and result of each sample taken during the last quarter;

[(III)] (3) The arithmetic average of the monthly arithmetic averages of all samples taken in the last year; and

[(IV)] (4) Whether, based on subsection (e)(11)(A)(iv) of this section [19-13-B102(e)(11)(G)], the MCL was violated.

[(C)] (iii) Disinfection byproduct precursors and enhanced coagulation or enhanced softening.

[(i)] (I) Systems monitoring monthly or quarterly for TOC under the requirements of subsection (e)(11)(A)(iii)(IV) of this section [19-13-B102(e)(11)(E) of the Regulations of Connecticut State Agencies] and required to meet the enhanced coagulation or enhanced softening requirements in subsection (j)(11)(B)(i) or (ii) of this section [19-13-B102(j)(11)(B)(i) or (ii) of the Regulations of Connecticut State Agencies] shall report the

following to the department:

[(I)] (1) The number of paired samples taken during the last quarter;

[(II)] (2) The location, date, and result of each paired sample and associated alkalinity taken during the last quarter;

[(III)] (3) For each month in the reporting period that paired samples were taken, the arithmetic average of the percent reduction of [toc] TOC for each paired sample and the required TOC percent removal;

[(IV)] (4) Calculations for determining compliance with the TOC percent removal requirements, as provided in subsection (j)(11)(C) of this section [19-13-B102(j)(11)(C) of the Regulations of Connecticut State Agencies]; and

[(V)] (5) Whether the system is in compliance with the enhanced coagulation or enhanced softening percent removal requirements in subsection (j)(11)(B) of this section [19-13-B102(j)(11)(B) of the Regulations of Connecticut State Agencies] for the last [four (4)] 4 quarters.

[(ii)] (II) Systems monitoring monthly or quarterly for TOC under the requirements of subsection (e)(11)(A)(iii)(IV) of this section [19-13-B102(e)(11)(E) of the Regulations of Connecticut State Agencies] and meeting one or more of the alternative compliance criteria in subsection (j)(11)(A) of this section [19-13-B102(j)(11)(A) of the Regulations of Connecticut State Agencies] shall report the following to the department:

[(I)] (1) The alternative compliance criterion that the system is using;

[(II)] (2) The number of paired samples taken during the last quarter;

[(III)] (3) The location, date, and result of each paired sample and associated alkalinity taken during the last quarter;

[(IV)] (4) The [running annual average] RAA based on monthly averages, or quarterly samples, of source water TOC for systems meeting a criterion in subsections (j)(11)(A)(i) or (ii) of this section [19- 13-B102(j)(11)(A)(i) or (ii) of the Regulations of Connecticut State Agencies] or of treated water TOC for systems meeting the criterion in subsection (j)(11)(A)(i) of this section;

[(V)] (5) The [running annual average] RAA based on monthly samples, or quarterly samples, of source or finished water SUVA for systems meeting the criterion in subsection (j)(11)(A)(iv) of this section [19-13-B102(j)(11)(A)(iv) of the Regulations of Connecticut State Agencies];

[(VI)] (6) The [running annual average] RAA of source water alkalinity for systems meeting the criterion in subsection (j)(11)(A)(ii) of this section [19-13-B102(j)(11)(A)(ii) of Regulations of Connecticut State Agencies] and of treated water alkalinity for systems meeting the criterion in subsection (j)(A)(v) of this section [19-

13-B102(j)(A)(v) of the Regulations of Connecticut State Agencies];

[(VII)] (7) The [running annual average] RAA for both TTHM and HAA5 for systems meeting the criterion in subsection (j)(11)(A)(iii) of this section [19-13-B102(j)(11)(A)(iii) of the Regulations of Connecticut State Agencies];

[(VIII)] (8) The [running annual average] RAA of the amount of magnesium hardness removal (as CaCO, in mg/l) for systems meeting the criterion in subsection (j)(11)(A)(vi) of this section [19-13- B102(j)(11)(A)(vi) of the Regulations of Connecticut State Agencies]; and

[(IX)] (9) Whether the system is in compliance with the particular alternative compliance criterion in subsection (j)(11)(A) of this section [19-13-B102(j)(11)(A) of the Regulations of Connecticut State Agencies].

(B) Stage 2 disinfection byproducts requirement.

(i) A system shall report the following information collected under subsection (e)(11)(C) of this section for each monitoring location to the department within 9 calendar days of the end of any quarter in which monitoring is required:

(I) Number of samples taken during the last quarter;

(II) Date and results of each sample taken during the last quarter;

(III) Arithmetic average of quarterly results for the last 4 quarters for each monitoring location, beginning at the end of the fourth calendar quarter that follows the compliance date and at the end of each subsequent quarter. If the LRAA calculated based on fewer than 4 quarters of data would cause the MCL to be exceeded regardless of the monitoring results of subsequent quarters, the system shall report this information to the department as part of the first report due following the compliance date or anytime thereafter that this determination is made. If the system is required to conduct monitoring at a frequency that is less than quarterly, the system shall make compliance calculations beginning with the first compliance sample taken after the compliance date, unless the system is required to conduct increased monitoring under subsection (e)(11)(C)(vi) of this section;

(IV) Whether, based on subsections (e)(11)(B)(i) and (e)(11)(C) of this section, the MCL was violated at any monitoring location; and,

(V) Any operational evaluation levels that were exceeded during the quarter and, if so, the location and date, and the calculated TTHM and HAA5 levels.

(ii) If a system is a surface water or GWUDI system seeking to qualify for or remain on reduced TTHM/HAA5 monitoring, the system shall report the following source water TOC information for each treatment plant that treats surface water or GWUDI to the department within 9 calendar days of the end of any quarter in which monitoring is required:

(I) The number of source water TOC samples taken each month during last quarter;

(II) The date and result of each sample taken during last quarter;

(III) The quarterly average of monthly samples taken during last quarter or the result of the quarterly sample;

(IV) The running annual average (RAA) of quarterly averages from the past 4 quarters; and,

(V) Whether the RAA exceeded 4.0 mg/l.

(iii) The department may in the department's discretion choose to perform calculations and determine whether the MCL was exceeded or the system is eligible for reduced monitoring in lieu of having the system report that information.

Sec. 20. Section 19-13-B102(h) of the Regulations of Connecticut State Agencies is amended by adding subdivision (9) as follows:

(NEW)(9) Reporting requirements for enhanced treatment for Cryptosporidium.

(A) Reporting source water monitoring results.

(i) Systems shall report results from the source water monitoring required under subsection (e)(7)(T)(ii) of this section no later than 10 days after the end of the first month following the month when the sample is collected.

(ii) All systems shall report results from the second round of source water monitoring required under subsection (e)(7)(T)(ii)(I) of this section to the department.

(iii)At a minimum, systems shall report the applicable information in subsections (h)(9)(A)(v)(I) and (II) of this section for the source water monitoring required under subsection (e)(7)(T)(ii) of this section:

(I)(1) Systems shall report the following data elements for each Cryptosporidium analysis:

(a) System ID;

(b) Facility ID;

(c) Sample collection date;

(d) Sample type (field or matrix spike);

(e) Sample volume filtered (L), to nearest 1/4 L;

(f) Was 100 percent of filtered volume examined; and

(g) Number of oocysts counted.

(2) For matrix spike samples, systems shall also report the sample volume spiked and estimated number of oocysts spiked. These data are not required for field samples.

(3) For samples in which less than 10 L is filtered or less than 100 percent of the sample volume is examined, systems shall also report the number of filters used and the packed pellet volume.

(4) For samples in which less than 100 percent of sample volume is examined, systems shall also report the volume of resuspended concentrate and volume of this resuspension processed through immunomagnetic separation.

(II) Systems shall report the following data elements for each E. coli analysis:

(1) System ID;

(2) Facility ID;

(3) Sample collection date;

(4) Analytical method number;

(5) Method type;

(6) Source type (flowing stream, lake, reservoir, GWUDI;

(7) E. coli/100 ml;

(8) Turbidity; and

(9) With respect to turbidity, systems serving fewer than 10,000 people that are not required to monitor for turbidity under subsection (e)(7)(T)(ii) of this section are not required to report turbidity with the system's E. coli results.

(iv) A system may submit an application to the department requesting not to report source water monitoring results under subsection (h)(9)(A)(i) through (v) of this section if the system meets the criteria in subsection (e)(7)(T)(ii)(III) of this section. Such application shall be submitted in accordance with subsection (t) of this section and shall include documentation demonstrating that the system meets the criteria in subsection (e)(7)(T)(ii)(III) of this section.

(B) Reporting sampling schedules.

(i) Systems shall report to the department sampling schedules as required by subsection (e)(7)(T)(iii) of this section.

(ii) A system may submit an application to the department requesting approval to not report sampling schedules under subsection (e)(7)(T)(iii) of this section if the system meets the criteria in subsection (e)(7)(T)(ii)(III) of this section. Such application shall be submitted in accordance with subsection (t) of this section and shall include documentation demonstrating that the system meets the criteria in subsection (e)(7)(T)(ii)(III) of this section.

(C) Reporting bin classifications. Systems shall report to the department the system's Cryptosporidium bin classifications as described in subsection (j)(12)(A) of this section.

(D) Systems shall report to the department disinfection profiles and benchmarks as described in subsections (e)(7)(T)(vii) through (viii) of this section prior to making a significant change in disinfection practice.

(E) Systems shall report to the department in accordance with the following Table 9-H1 of subsection (h)(9)(E) of this section for any microbial toolbox options used to comply with treatment requirements under subsection (j)(12)(B) of this section:

TABLE 9-H1. MICROBIAL TOOLBOX REPORTING REQUIREMENTS

TOOLBOX OPTION	SYSTEMS SHALL SUBMIT THE FOLLOWING INFORMATION	ON THE FOLLOWING SCHEDULE
(1) Watershed Control Program (WCP)...	(i) Notice of intention to develop a new or continue an existing watershed control program...	No later than 2 years before the applicable treatment compliance date in subsection (j)(12)(C) of this section.
	(ii) Watershed control plan...	No later than 1 year before the applicable treatment compliance date in subsection (j)(12)(C) of this section.
	(iii) Annual watershed control program status report...	Every 12 months, beginning 1 year after the applicable treatment compliance date in subsection (j)(12)(C) of this section.
	(iv) Watershed sanitary survey report...	For community water systems, every 3 years beginning 3 years after the applicable treatment compliance date in subsection (j)(12)(C) of this section. For noncommunity water systems, every 5 years beginning 5 years after the applicable treatment compliance date in subsection (j)(12)(C) of this section.
(2) Alternative source/ intake management...	Verification that the system has relocated the intake or adopted the intake withdrawal procedure reflected in monitoring results...	No later than the applicable treatment compliance date in subsection (j)(12)(C) of this section.
(3) Presedimentation...	Monthly verification of the following: (i) Continuous basin operation; (ii) Treatment of 100 percent of the flow; (iii) Continuous addition of a coagulant; and (iv) At least 0.5 log mean reduction of influent turbidity or compliance with alternative department-approved performance criteria...	Monthly reporting within 9 calendar days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in subsection (j)(12)(C) of this section.
(4) Two-stage lime softening...	Monthly verification of the following: (i) Chemical addition and hardness precipitation occurred in 2 separate and sequential stages	Monthly reporting within 9 calendar days following the month in which the monitoring was conducted,

	prior to filtration; and (ii) Both stages treated 100 percent of the plant flow…	beginning on the applicable treatment compliance date in subsection (j)(12)(C) of this section.
(5) Bank filtration…	(i) Initial demonstration of the following: (A) Unconsolidated, predominantly sandy aquifer; and (B) Setback distance of at least 25 feet (0.5 log credit) or 50 feet (1.0 log credit)…	No later than the applicable treatment compliance date in subsection (j)(12)(C) of this section.
	(ii) If monthly average of daily max turbidity is greater than 1 nephelolometric turbidity unit (NTU), then the system shall report result and submit an assessment of the cause…	Report within 30 calendar days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in subsection (j)(12)(C) of this section.
(6) Combined filter performance…	Monthly verification of combined filter effluent (CFE) turbidity levels less than or equal to 0.15 NTU in at least 95 percent of the 4 hour CFE measurements taken each month…	Monthly reporting within 9 calendar days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in subsection (j)(12)(C) of this section.
(7) Individual filter performance…	Monthly verification of the following: (i) Individual filter effluent (IFE) turbidity levels less than or equal to 0.15 NTU in at least 95 percent of samples each month in each filter; and (ii) No individual filter greater than 0.3 NTU in 2 consecutive readings 15 minutes apart…	Monthly reporting within 9 calendar days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in subsection (j)(12)(C) of this section.
(8) Bag filters and cartridge filters…	(i) Demonstration that the following criteria are met: (A) Process meets the definition of bag or cartridge filtration; and (B) Removal efficiency established through challenge testing that meets criteria in subsections (e)(7)(T), (h)(9), (j)(12) and (j)(13) of this section…	No later than the applicable treatment compliance date in subsection (j)(12)(C) of this section.
	(ii) Monthly verification that 100 percent of plant flow was filtered…	Within 9 calendar days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in subsection (j)(12)(C) of this section.

(9) Membrane ...tration...	(i) Results of verification testing demonstrating the following: (A) Removal efficiency established through challenge testing that meets criteria in subsections (e)(7)(T), (h)(9), (j)(12) and (j)(13) of this section; and (B) Integrity test method and parameters, including resolution, sensitivity, test frequency, control limits, and associated baseline...	No later than the applicable treatment compliance date in subsection (j)(12)(C) of this section.
	(ii) Monthly report summarizing the following: (A) All direct integrity tests above the control limit; and (B) If applicable, any turbidity or alternative department-approved indirect integrity monitoring results triggering direct integrity testing and the corrective action that was taken...	Within 9 calendar days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in subsection (j)(12)(C) of this section.
(10) Second stage filtration...	Monthly verification that 100 percent of flow was filtered through both stages and that the first stage was preceded by a coagulation step...	Within 9 calendar days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in subsection (j)(12)(C) of this section.
(11) Slow sand filtration (as secondary filter)...	Monthly verification that both a slow sand filter and a preceding separate stage of filtration treated 100 percent of flow from surface water or GWUDI sources...	Within 9 calendar days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in subsection (j)(12)(C) of this section.
(12) Chlorine dioxide...	Summary of CT values for each day as described in subsection (j)(13)(F) of this section...	Within 9 calendar days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in subsection (j)(12)(C) of this section.
(13) Ozone...	Summary of CT values for each day as described in subsection (j)(13)(F) of this section...	Within 9 calendar days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in subsection (j)(12)(C) of this section.

(14) UV...	(i) Validation of test results demonstrating operating conditions that achieve required UV dose...	No later than the applicable treatment compliance date in subsection (j)(12)(C) of this section.
	(ii) Monthly report summarizing the percentage of water entering the distribution system that was not treated by UV reactors operating within validated conditions for the required dose as specified in subsection (j)(13)(F)(iii) of this section...	Within 9 calendar days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in subsection (j)(12)(C) of this section.

Sec. 21. Section 19-13-B102(h) of the Regulations of Connecticut State Agencies is amended by adding subdivision (10) as follows:

(NEW)(10) Reporting for ground water systems. In addition to the requirements of subsections (h)(1) through (4), inclusive, of this section, a ground water system regulated under subsections (e)(7)(E), (e)(12) and (j)(14) of this section shall provide the following information to the department:

(A) A ground water system conducting compliance monitoring under subsection (j)(14)(B) of this section shall notify the department any time the system fails to meet any of the requirements under subsection (j)(14)(B)(iii) of this section, including, but not limited to the system's required minimum RDC, the system's required minimum CT value, if the department stated a required minimum CT value in the department's subsection (j)(14)(B)(i)(I) or (j)(14)(B)(ii)(I) of this section approval, the system's department-approved membrane operating criteria or membrane integrity, and the system's department-approved alternative treatment operating criteria, if operation in accordance with the department-approved criteria or requirements is not restored within 4 hours. The ground water system shall notify the department immediately, but no later than the end of the next business day, by telephone.

(B) After completing any corrective action under subsections (e)(7)(E)(iv) or (j)(14)(A) of this section, a system shall submit an application to the department in accordance with subsection (t) of this section requesting approval of the system's completion of corrective action or actions. Such application shall include documentation demonstrating completion of such corrective action or actions. Documentation demonstrating completion of corrective action may include, but not be limited to, digital photographs and engineering reports. Such application shall be submitted to the department within 30 calendar days of completion of the corrective action or actions.

(C) If a ground water system subject to the requirements of subsection (e)(12)(C) of this section does not conduct source water monitoring under subsection (e)(12)(C)(v)(II) of this section, the system shall submit an application to the department in accordance with subsection (t) of this section requesting approval that the system's total coliform positive sample was collected at a location in the distribution system that, at the time of collection, had a condition that caused the total coliform-positive sample. Such application shall include documentation demonstrating that the condition in the distribution system caused the total coliform-positive sample. Evidence that a condition in the distribution system caused the total coliform-positive sample includes, but is not limited to documentation of a bio-film problem. Such application shall be submitted to the department within 30 calendar days of the department's approval of the application submitted under subsection (e)(12)(C)(v)(II) of this section.

Sec. 22. Section 19-13-B102(i)(1) through (6) of the Regulations of Connecticut State Agencies is amended to read as follows:

(1) Tier 1 public notice form, manner and frequency of notice.

(A) The following in subsections (i)(1)(A)(i) through (viii), inclusive, of this section provides the list of violation categories and other situations requiring a tier 1 notice:

(i) Violation of the MCL for total coliforms when fecal coliform or E. coli are present in the distribution system, or when the system fails to test for fecal coliforms or E. coli when any repeat sample tests positive for coliform;

(ii) Violation of the MCL for nitrate, nitrite, or total nitrate and nitrite, or when the system fails to take a confirmation sample within 24 hours of the system's receipt of the first sample showing an exceedance of the nitrate or nitrite MCL;

(iii)Violation of the MRDL for chlorine dioxide when 1 or more samples taken in the distribution system the day following an exceedance of the MRDL at the entrance of the distribution system exceed the MRDL, or when the system does not take the required samples in the distribution system;

(iv) Violation of the MCL for turbidity under subsections (e)(7)(H)(ii) and (j)(2)(D) of this section, where the department determines after consultation with the system that the violation of the MCL for turbidity combined with other site-specific information indicate that potential pathogens may have passed the point of entry to the distribution system, or where the system does not consult with the department within 24 hours after the system learns of the violation;

(v) Violation of the MCL for turbidity as specified in subsection (j)(4) of this section, where the department determines after consultation with the system that the violation of the MCL for turbidity combined with other site-specific information indicate that potential pathogens may have passed the point of entry to the water distribution system, or where the system does not consult with the department within 24 hours after the system learns of the violation;

(vi) Occurrence of a waterborne disease outbreak;

(vii) Detection of any chemical listed in subsections (e)(2) through (e)(4), inclusive, of this section at a level that is determined by the department to have serious adverse effects on human health as a result of short term exposure based on available scientific and epidemiological findings; or,

(viii) Detection of E. coli, enterococci, or coliphage in ground water source samples as specified in subsection (e)(12)(C) and (D) of this section.

[(1) A] (B) For a tier 1 public [water] notice, a system [that has a tier 1 notice] shall [do] comply with the following requirements:

[(A)] (i) Provide a public notice to [its customers] the system's consumers as soon as practical but no later than [twenty four (24)] 24 hours after the system learns of the violation in one or more of the following forms of delivery :

[(i)] (I) Appropriate broadcast media, such as radio and television;

[(ii)] (II) Posting of the notice in a conspicuous location(s) throughout the area served by the [public water] system;

[(iii)] (III) Hand delivery of the notice to persons served by the [public water] system; or

[(iv)] (IV) Another delivery method approved in writing by the department. To request approval to use another delivery method, the system shall submit an application to the department in accordance with subsection (t) of this section within 12 hours after the system learns of the violation.

[(B)] (ii) Initiate consultation with the department as soon as practical but no later than [twenty-four (24)] 24 hours after the [public water] system learns of the violation or situation, to determine additional public notice requirements.

(iii) [The system shall comply] Comply with any additional public notification requirements that are established as a result of the consultation with the department. Such requirements may include the timing, form, manner, frequency, and content of repeat notices (if any) and other actions designed to reach all persons served.

(2) Tier 2 public notice form, manner and frequency of notice.

(A) The following in subsection (i)(2)(A)(i) through (iv), inclusive, of this section provides the list of violation categories and other situations requiring a tier 2 notice:

(i) All violations of the MCL, MRDL, or treatment technique requirements, except where a tier 1 notice is required under subsection (i)(1) of this section or where a unit or value requirement under subsection (e)(1) of this section for color, turbidity, odor, or pH is exceeded;

(ii) Violations of the monitoring and testing procedure requirements for total coliforms, nitrate, nitrite, total nitrate and nitrite, or chlorine dioxide, except where a tier 1 notice is required under subsection (i)(1) of this section;

(iii)Failure to comply with the terms and conditions of any variance, order, consent order, consent agreement or exemption; or,

(iv) Failure to take corrective action or failure to maintain at least 4 log treatment of viruses using inactivation, removal, or a department-approved combination of 4 log virus inactivation and removal before or at the first consumer under subsections (e)(7)(E)(iv)(II), (e)(7)(E)(iv)(IV), (e)(12)(C) or (j)(14) of this section.

[(2) A public water] (B) For a tier 2 public notice, a system [that has a tier 2 notice] shall [do] comply with the following requirements:

[(A)] (i) Provide a public notice to [its customers] the system's consumers as soon as practical but no later than [thirty (30)] 30 days after the system learns of the violation in one or more of the following forms of delivery:

[(i)] (I) Mail or other direct delivery to each [customers] consumer receiving a bill and to other service connections to which water is delivered by the system; and [publication]

(II) Publication in a local newspaper or newsletter;

[(ii)] (III) Posting the notice in conspicuous locations throughout the distribution system and frequented by persons served by the system; or

[(iii)] (IV) Any other delivery method approved in writing by the department. To request approval to use another delivery method, the system shall submit an application to the department in accordance with subsection (t) of this section within 15 calendar days after the system learns of the violation.

[(B)] (ii) After the initial notice, the [public water] system shall repeat the notice every [three (3)] 3 months for as long as the violation or situation persists.

[(C)] (iii) If the public notice is posted, the notice shall remain in place for as long as the violation or situation persists, but in no case for less than [seven (7)] 7 calendar days, even if the violation or situation is resolved.

(3) Tier 3 public notice form, manner and frequency of notice.

(A) The following in subsection (i)(3)(A)(i) through (v), inclusive, of this section provides the list of violation categories and other situations requiring a tier 3 notice:

(i) Violation of a monitoring requirement, except where a tier 1 notice or a tier 2 notice is required under subsections (i)(1) or (i)(2) of this section, respectively;

(ii) Failure to comply with a testing procedure requirement, except where a tier 1 notice or a tier 2 notice is required under subsections (i)(1) or (i)(2) of this section, respectively;

(iii)Operation under an administrative order, variance, or an exemption;

(iv)Failure to provide the notice of the availability of unregulated contaminant monitoring results, as required under 40 CFR 141.207, as amended from time to time; or

(v) Exceedance of the fluoride secondary maximum contaminant level (SMCL), as required under 40 CFR 141.208, as amended from time to time.

[(3) A public water] (B) For a tier 3 public notice, a system [that has a tier 3 notice] shall [do] comply with the following requirements:

[(A)] (i) Provide a public notice to the system's consumers no later than [one (1)] 1 year after the system learns of the violation or situation or begins operating under a variance or exemption in one or more of the following forms of delivery:

[(i)] (I) Mail or other direct delivery to each [customer] consumer receiving a bill and to other service connections to which water is delivered by the system; and

[(ii)] (II) Publication in a local newspaper or newsletter; or

[(iii)] (III) Posting the notice in conspicuous locations throughout the distribution system and frequented by persons served by the system; or

[(iv)] (IV) Any other delivery method approved in writing by the department. To request approval to use another delivery method, the system shall submit an application to the department in accordance with subsection (t) of this section within 90 calendar days after the system learns of the violation.

[(B)] (ii) After the initial notice, the notice shall be repeated annually for as long as the violation, variance, exemption or other situation persists. If the notice is posted, the notice shall remain in place for as long as the violation, variance, exemption or other situation persists, but in no case less than [seven (7)] 7 calendar days even if the violation or situation is resolved.

[(C)] (iii) The consumer confidence report (CCR) required under subsection (i)(10) of this section [19-13- B102(i)(10) of the Regulations of Connecticut State Agencies] may be used as a vehicle for the initial public notice of a tier 3 notice and all required repeat notices, provided:

[(i)] (I) The CCR is provided to persons served no later than [twelve (12)] 12 months after the system learns of the violation or situation, as required under subsection (i)(3)(B)(i) of this section [19-13-B102(i)(3)(A) of the Regulations of Connecticut state agencies];

[(ii)] (II) The tier 3 notice contained in the CCR follows the content requirements under subsection (i)(4) of this section [19-13-B102(i)(4) of the Regulations of Connecticut State Agencies]; and

[(iii)] (III) The CCR is distributed following the delivery requirements under subsections (i)(3)(B)(i)(I) through (IV), inclusive, of this section [19-13-B102(i)(3)(A) of the Regulations of Connecticut State Agencies].

(4) General content of public notice for a tier 1, tier 2 or tier 3 notice. Each notice required by this section shall be approved by the department.

(A) Each public notice for a tier 1, tier 2 or tier 3 notice shall contain the following information:

(i) [a] A description of the violation or situation, including the contaminant(s) of concern[,] and, when applicable, the contaminant level(s);

(ii) [any] Any potential adverse health effects from the violation or situation, including, but not limited to[,] any applicable standard language required by 40 CFR 141.205, as amended from

time to time, 40 CFR 141, Subpart O, Appendix A, as amended from time to time, 40 CFR 141, Subpart Q, Appendix B, as amended from time to time, and 40 CFR 141, Subpart Q, Appendix C, as amended from time to time;

(iii) [the] The population at risk, including any subpopulation particularly vulnerable if exposed to the contaminant in their drinking water;

(iv) [what] What the system is doing to correct the violation or situation;

(v) [whether] Whether alternative water supplies should be used;

(vi) [what action] What actions the consumer should take, including when the consumer should seek medical help, if known;

(vii) [the] The name, business address, and the telephone number of the owner, operator or designee of the [public water] system as a source of additional information concerning the notice;

(viii) [when] When the violation or situation occurred;

(ix) [when] When the [water] system expects to return to compliance or resolve the situation; and,

(x) [a] A statement to encourage the recipient of the notice to distribute the public notice to other persons served, using the following language, where applicable: "[please] Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail."

(B) Each notice for [public water] systems operating under a variance, administrative order or an exemption shall contain the following information:

(i) [an] An explanation of the reasons for the variance, order or exemption;

(ii) [the] The date on which the variance, order or exemption was issued;

(iii) [a] A brief status report on the steps the system is taking to install treatment, find alternative sources of water, or otherwise comply with the terms and schedules of the variance, order or exemption; and,

(iv) [a] A notice of any opportunity for public input in the review of the variance, order or exemption.

(C) Each public notice required by this section:

(i) [shall] Shall be displayed in a conspicuous way when printed or posted;

(ii) [shall] Shall not contain overly technical language or very small print;

(iii) [shall] Shall not be formatted in a way that defeats the purpose of the notice; and

(iv) [shall] Shall not contain language that nullifies the purpose of the notice.

(D) For systems serving a large proportion of [non-english] non-English speaking consumers, as determined in writing by the department, the notice shall also contain information in the appropriate foreign language regarding the importance of the notice or [contain] a telephone number or address where persons served may contact the [water] system to obtain a translated copy of the notice or to request assistance in the appropriate foreign language.

(5) General notice requirements for other than tier 1, tier 2 or tier 3 notice.

(A) A [water system] CWS or a NTNC that exceeds the copper action level, based on tap water samples collected in accordance with subsection (e)(8) of this section [19-13-B102(e)(8)], shall notify consumers of the concentration by direct mail, no later than [thirty (30)] 30 calendar days after the system learns of the exceedance. The form and manner of the public notice shall follow the requirements for a tier 2 notice as prescribed in subsection (i)(2) of this section [19-13-B102(i)(2)]. At a minimum, the notice shall include the following mandatory language: "[if] If you have been diagnosed with copper intolerance due to a genetic deficiency, please inform your physician that the 90th percentile level of copper in our water is (BLANK) milligrams per liter." ([the] The blank space should contain the 90th percentile level of copper in the water).

(B) When the sodium concentration [for water ready for consumption] in finished water exceeds [twenty eight (28.0)] 28.0 mg/l, [consumers of] the [public water] system shall [be notified] notify the system's consumers of the concentration by direct mail or in the next billing cycle, and [such notification] shall [be repeated] repeat such notification annually for as long as the exceedance exists. At a minimum, the notice shall include the following mandatory language: "If you have been placed on a sodium-restricted diet, please inform your physician that our water contains (BLANK) mg/l of sodium." ([the] The blank [ ] space should contain the level of sodium in the water.)

(C) Special notice of the availability of unregulated contaminant monitoring results. A [public water] system that is required to monitor for the unregulated contaminants, pursuant to 40 CFR 141.40, as amended from time to time, shall notify persons served by the system of the availability of the results of such sampling no longer than [twelve (12)] 12 months after the monitoring results are known. The form and manner of the public notice shall follow the requirements for a tier 3 notice prescribed in subsection (i)(3) of this section [19-13-B102(i)(3)]. The notice shall also identify a person and provide a telephone number for information on the monitoring results.

(D) Special notice of exceedance of the SMCL for fluoride. A [public water] system [with] that exceeds the fluoride [concentration between 2] SMCL of 2.0 mg/l [and], but do not exceed the SMCL of 4.1 mg/l for fluoride, shall provide public notice to persons served as soon as practical, but no later than [twelve (12)] 12 months from the day the [water] system learns of the fluoride level. The notice shall be repeated annually for as long as the fluoride level remains between [2] 2.0 mg/l and 4.1 mg/l. If the notice is posted, it shall remain in place for as long as the fluoride level remains between [2] 2.0 mg/l and 4.1 mg/l, but in no case for less than [seven (7)] 7 calendar days. The notice shall follow the requirements for a tier 3 notice as specified in subsection (i)(3)

of this section [19-13-B102(i)(3)] and shall contain at a minimum[,] the language required in 40 CFR 141.208(c), as amended from time to time.

(E) Special notice for repeated failure to conduct monitoring of the source water for Cryptosporidium and for failure to determine bin classification.

(i) A CWS or non-community water system that is required to monitor source water under subsection (e)(7)(T)(ii) of this section shall notify persons served by the system that monitoring has not been completed as specified no later than 30 calendar days after the system has failed to collect any 3 months of monitoring as specified in subsection (e)(7)(T)(ii)(II) of this section. The notice shall be repeated as specified in subsection (i)(2)(B)(ii) of this section.

(ii) A CWS or non-community water system that is required to determine a bin classification under subsection (j)(12)(A) of this section shall notify persons served by the system that the determination has not been made as required no later than 30 calendar days after the system has failed to report the determination as specified in subsection (j)(12)(A)(v) of this section. The notice shall be repeated as specified in subsection (i)(2)(B)(ii) of this section. The notice is not required if the system is complying with a department-approved schedule to address the violation.

(iii) The form and manner of the special notice shall follow the requirements of a tier 2 public notice prescribed in subsection (i)(2)(A)(2) of this section. The special notice shall be presented as required in subsection (i)(4)(C) of this section.

(iv) The special notice shall contain the following language in subsection (i)(5)(E)(iv)(I) through (III), inclusive, of this section, including the language necessary to fill in the information in brackets:

(I) The special notice for repeated failure to conduct monitoring shall contain the following language :

We are required to monitor the source of your drinking water for Cryptosporidium. Results of the monitoring are to be used to determine whether water treatment at the {treatment plant name} is sufficient to adequately remove Cryptosporidium from your drinking water. We are required to complete this monitoring and make this determination by {required bin determination date}. We "did not monitor or test" or "did not complete all monitoring or testing" on schedule and, therefore, we may not be able to determine by the required date what treatment modifications, if any, must be made to ensure adequate Cryptosporidium removal. Missing this deadline may, in turn, jeopardize our ability to have the required treatment modifications, if any, completed by the deadline required, {date}.

For more information, please call {name of water system contact} of {name of water system} at {phone number}.

(II) The special notice for failure to determine bin classification shall contain the following language:

We are required to monitor the source of your drinking water for Cryptosporidium in order to determine by {date} whether water treatment at the {treatment plant name} is sufficient to adequately remove Cryptosporidium from your drinking water. We have not made this determination by the required date. Our failure to do this may jeopardize our ability to have the required treatment modifications, if any, completed by the required deadline of {date}.

For more information, please call {name of water system contact} of {name of water system} at {phone number}.

(III) Each special notice shall also include a description of what the system is doing to correct the violation and when the system expects to return to compliance or resolve the situation.

(F) Special notice to the public of significant deficiencies or source water fecal contamination.

(i) In addition to the applicable public notification requirements of subsection (i) of this section, a CWS that receives a sanitary survey report or other written notification from the department containing the CWS's significant deficiency or significant deficiencies, or notification of a fecal indicator-positive ground water source sample that is not invalidated by the department under subsection (e)(12)(F) of this section shall inform persons served by the CWS under subsection (i)(10)(A) of this section of any significant deficiency or fecal indicator-positive source sample that has not been corrected. The system shall continue to inform the public annually until the significant deficiency is corrected or the fecal contamination in the ground water source is determined by the department to be corrected under subsections (e)(7)(E)(iv)(IV) or (j)(14)(A)(iv) of this section.

(ii) In addition to the applicable public notification requirements of subsection (i) of this section, a non-community water system that receives a sanitary survey report or other written notification from the department containing the system's significant deficiency or significant deficiencies shall inform persons served by the non-community water system in a manner approved by the department of any significant deficiency that has not been corrected within 12 months of receiving the sanitary survey report or other written notification from the department containing the system's significant deficiencies, or earlier if directed by the department. To request such approval, the non-community water system shall submit an application to the department in accordance with subsection (t) of this section requesting approval of the manner in which the non-community water system will inform the public served by the non-community water system. The system shall continue to inform the public annually until the significant deficiency is corrected. The information submitted to the public shall include the following information:

(I) The nature of the significant deficiency and the date the significant deficiency was identified by the department;

(II) The department-approved plan and schedule for correction of the significant deficiency, including interim measures, progress to date, and any interim measures completed; and,

(III) For systems with a large proportion of non-English speaking consumers, as determined by the department, information in the appropriate language(s) regarding the importance of the

notice or a telephone number or address where consumers may contact the system to obtain a translated copy of the notice or assistance in the appropriate language.

(iii) If directed by the department, a non-community water system with significant deficiencies that have been corrected shall inform persons served by the system of the significant deficiencies, how the deficiencies were corrected, and the dates of correction under subsection (i)(5)(F)(ii) of this section.

(6) [Public] Lead and copper public education and notification requirements. All systems shall deliver a consumer notice of lead tap water monitoring results to persons served by the system at sites that are tested, as specified in subsection (i)(6)(C) of this section. A [water] system that exceeds the lead action level based on tap water samples collected in accordance with subsection (e)(8) of this section shall deliver the public education materials contained in [40 CFR 141.85(a) and 40 CFR 141.85(b) in accordance with the requirements in 40 CFR 141.85(c) within sixty (60) days after the end of the monitoring period in which the exceedance occurs and shall offer to sample the tap water of any customer who requests it according to 40 CFR 141.85(d) as amended from time to time] subsection (i)(6)(A) of this section in accordance with the requirements in subsection (i)(6)(B) of this section. Systems that exceed the lead action level shall offer to sample the tap water of any consumer who requests it. The system is not required to pay for collecting or analyzing the sample, nor is the system required to collect and analyze the sample itself. Unless otherwise indicated, the provisions of subsection (i)(6) of this section apply to CWSs and NTNCs.

(A) Content of written public education materials.

(i) Content requirements for CWSs and NTNCs. CWSs and NTNCs shall include in the system's public education materials the elements listed in subsections (i)(6)(A)(i)(I) through (VI) of this section in printed materials (e.g., brochures and pamphlets) in the same order as listed. In addition, language in subsections (i)(6)(A)(i)(I) through (II) and (VI) of this section shall be included in the materials, exactly as written, except for the text in brackets for which the system shall include system-specific information. Any additional information presented by a system shall be consistent with the information in subsections (i)(6)(A)(i)(I) through (VI) of this section and shall be in plain language that can be understood by the general public. Systems shall submit an application to the department requesting approval of all written public education materials. Such application shall be submitted to the department for approval prior to delivery and in accordance with subsection (t) of this section.

(I) IMPORTANT INFORMATION ABOUT LEAD IN YOUR DRINKING WATER. {INSERT NAME OF WATER SYSTEM} found elevated levels of lead in drinking water in some homes/buildings. Lead can cause serious health problems, especially for pregnant women and young children. Please read this information closely to see what you can do to reduce lead in your drinking water.

(II) Health effects of lead. Lead can cause serious health problems if too much enters your body from drinking water or other sources. It can cause damage to the brain and kidneys, and can interfere with the production of red blood cells that carry oxygen to all parts of your body. The greatest risk of lead exposure is to infants, young children, and pregnant women. Scientists have linked the effects of lead on the brain with lowered IQ in children. Adults with kidney problems and high blood pressure can be affected by low levels of lead

more than healthy adults. Lead is stored in the bones, and it can be released later in life. During pregnancy, the child receives lead from the mother's bones, which may affect brain development.

(III) Provide information regarding sources of lead:

(1) Explain what lead is;

(2) Explain possible sources of lead in drinking water and how lead enters drinking water. Include information on home/building plumbing materials and service lines that may contain lead; and,

(3) Discuss other important sources of lead exposure in addition to drinking water (e.g., paint).

(IV) Discuss the steps the consumer can take to reduce their exposure to lead in drinking water:

(1) Encourage running the water to flush out the lead;

(2) Explain concerns with using hot water from the tap and specifically caution against the use of hot water for preparing baby formula;

(3) Explain that boiling water does not reduce lead levels;

(4) Discuss other options consumers can take to reduce to lead in drinking water, such as alternative sources or treatment of water; and,

(5) Suggest that parents have their child's blood tested for lead.

(V) Explain why there are elevated levels of lead in the system's drinking water (if known) and what the system is doing to reduce the lead levels in homes/buildings in this area.

(VI) For more information, call us at {INSERT YOUR NUMBER} {(IF APPLICABLE), or visit our Web site at {INSERT YOUR WEB SITE HERE}}. For more information on reducing lead exposure around your home/building and the health effects of lead, visit EPA's Web site at *http://www.epa.gov/lead* or contact your health care provider.

(ii) Additional content requirements for CWSs. In addition to including the elements specified in subsection (i)(6)(A)(i) of this section, a CWS shall also include the following elements in the CWS's written public education materials:

(I) Tell consumers how to get their water tested; and,

(II) Discuss lead in plumbing components and the difference between low lead and lead free.

(B) Delivery of public education materials.

(i) For CWSs and NTNCs serving a large proportion of non-English speaking consumers, as determined by the department, the public education materials shall contain information in the appropriate language(s) regarding the importance of the notice or contain a telephone number or address where persons served may contact the system to obtain a translated copy of the public education materials or to request assistance in the appropriate language.

(ii) A CWS that exceeds the lead action level on the basis of tap water samples collected in accordance with subsection (e)(8) of this section, and that is not already conducting public education tasks under subsection (i)(6) of this section, shall implement the public education tasks under subsection (i)(6) of this section, including the following public education delivery tasks listed in subsection (i)(6)(B)(ii) of this section, within 60 days after the end of the monitoring period in which the exceedance occurred. If a CWS requires an extension beyond the 60-day implementation deadline in which to implement the public education tasks in subsection (i)(6)(B)(ii) of this section, the CWS shall obtain approval of such extension from the department in writing prior to the last day of the 60-day implementation deadline. The CWS shall submit to the department at least 30 calendar days prior to the last day of the 60-day implementation period an application requesting an extension beyond the 60-day implementation deadline. Such application shall include the reason or reasons why the CWS is unable to comply with the 60-day implementation deadline and shall be submitted in accordance with subsection (t) of this section. The department may, in the department's discretion, approve the application for an extension beyond the 60-day requirement if needed for implementation purposes on a case-by-case basis. If the department approves the CWS's extension request, such approval shall be in writing. A system shall conduct the following public education tasks:

(I) Deliver printed materials meeting the content requirements of subsection (i)(6)(A) of this section to all bill paying consumers.

(II)(1) Contact consumers who are most at risk by delivering education materials that meet the content requirements of subsection (i)(6)(A) of this section to local public health agencies even if they are not located within the system's service area, along with an informational notice that encourages distribution to all the organization's potentially affected consumers or CWS's users. The system shall contact the local public health agencies directly by phone or in person. If the local public health agencies provide to a system a specific list of additional community-based organizations serving target populations, which may include organizations outside the service area of the system, the system shall deliver education materials that meet the content requirements of subsection (i)(6)(A) of this section to all organizations on the provided list.

(2) Contact consumers who are most at risk by delivering materials that meet the content requirements of subsection (i)(6)(A) of this section to the following organizations listed in subsection (i)(6)(B)(ii)(II)(2)(A) through (F) of this section that are located within the system's service area, along with an informational notice that encourages distribution to all the organization's potentially affected consumers or CWS's users:

(A) Public and private schools or school boards;

(B) Women, Infants and Children and Head Start programs;

(C) Public and private hospitals and medical clinics;

(D) Pediatricians;

(E) Family planning clinics; and,

(F) Local welfare agencies.

(3) Locate the following organizations listed in subsection (i)(6)(B)(ii)(II)(3)(A) through (C) of this section within the service area and deliver materials that meet the content requirements of subsection (i)(6)(A) of this section to them, along with an informational notice that encourages distribution to all potentially affected consumers or users. Contacting at-risk consumers may include requesting a specific contact list of the organizations listed in subsection (i)(6)(B)(ii)(II)(3)(A) through (C) of this section from the local public health agencies, even if the agencies are not located within the system's service area:

(A) Childcare centers, group day care homes, and family day care homes licensed by the department under Chapter 368a of the Connecticut General Statutes;

(B) Public and private preschools; and,

(C) Obstetricians-gynecologists and midwives.

(III) No less often than quarterly, provide information on or in each water bill as long as the system exceeds the action level for lead. The message on the water bill shall include the following statement exactly as written except for the text in brackets for which the system shall include system-specific information: {INSERT NAME OF SYSTEM} found high levels of lead in drinking water in some homes. Lead can cause serious health problems. For more information please call {INSERT NAME OF SYSTEM} {or visit (INSERT THE SYSTEM'S WEB SITE HERE)}. If the system is unable to include this information in the system's water bills, the system shall submit an application to the department in accordance with subsection (t) of this section requesting approval to mail this public education information to the system's consumers in a separate mailing. The system shall obtain approval of such separate mailing before mailing such information in the separate mailing.

(IV) Post material meeting the content requirements of subsection (i)(6)(A) of this section on the system's Web site if the system serves a population greater than 100,000.

(V) Submit a press release to newspaper, television and radio stations.

(VI) In addition to subsections (i)(6)(B)(ii)(I) through (V) of this section, systems shall implement at least 3 activities from one or more categories listed in subsection (i)(6)(B)(ii)(VI)(1) through (9) of this section. The system shall consult with the department regarding the educational content and selection of these activities and, after such consultation, shall submit an application to the department requesting approval of the

education content and activities selected. Such application shall be submitted in accordance with subsection (t) of this section. The system shall obtain department approval of educational content and the activities selected before implementing such activities.

(1) Public Service Announcements;

(2) Paid advertisements;

(3) Public area informational displays;

(4) E-mails to consumers;

(5) Public meetings;

(6) Household deliveries;

(7) Targeted individual consumer contact;

(8) Direct material distribution to all multi-family homes and institutions; and,

(9) Other methods approved by the department.

(VII) For systems that are required to conduct monitoring annually or less frequently, the end of the monitoring period is September 30 of the calendar year in which the sampling occurs. If the department has approved the system's use of an alternate monitoring period pursuant to the provisions of subsection (e)(8) of this section, the end of the monitoring period is the last day of that approved alternative monitoring period.

(iii)Repeating public education tasks each year a CWS exceeds lead action level. As long as a CWS exceeds the lead action level, the CWS shall repeat the activities pursuant to subsection (i)(6)(B)(ii) of this section as described in subsection (i)(6)(B)(iii)(I) through (IV) of this section.

(I) A CWS shall repeat the tasks contained in subsections (i)(6)(B)(ii)(I), (II) and (VI) of this section every 12 months.

(II) A CWS shall repeat the tasks contained in subsection (i)(6)(B)(ii)(III) of this section with each billing cycle.

(III) A CWS serving a population greater than 100,000 shall post and retain material on a publicly accessible Web site pursuant to the subsection (i)(6)(B)(ii)(IV) of this section.

(IV) A CWS shall repeat the task in subsection (i)(6)(B)(ii)(V) of this section once every 6 months on a schedule approved in writing by the department. To request approval of the CWS's schedule, the CWS shall submit an application to the department in accordance with subsection (t) of this section at least 30 calendar days prior to the last day of the 60

day implementation period. If the department approves such extension, the department shall do so in writing in advance of the 60-day deadline.

(iv) Within 60 days after the end of the monitoring period in which the exceedance occurred, unless the NTNC already is repeating public education tasks pursuant to subsection (i)(6)(B)(v) of this section, a NTNC shall deliver the public education materials specified by subsection (i)(6)(A) of this section as follows:

(I) Post informational posters on lead in drinking water in a public place or common area in each of the buildings served by the system; and

(II) Distribute informational pamphlets or brochures, or both, on lead in drinking water to each person served by the NTNC. A NTNC may use electronic transmission in lieu of or combined with printed materials if the use of electronic transmission achieves at least the same coverage as use of printed materials. A NTNC requesting approval to use electronic transmission in lieu of or combined with printed materials shall submit an application to the department in accordance with subsection (t) of this section requesting approval to use electronic transmission. The department may approve such use of electronic transmission only if such use achieves at least the same coverage as use of the printed materials.

(III) For NTNCs that are required to conduct monitoring annually or less frequently, the end of the monitoring period is September 30 of the calendar year in which the sampling occurs, or, if the department has approved an alternative monitoring period pursuant to the provisions of subsection (e)(8) of this section, the end of the monitoring period is the last day of that established alternative monitoring period.

(v) A NTNC shall repeat the tasks contained in subsection (i)(6)(B)(iv) of this section at least once during each calendar year in which the system exceeds the lead action level. If a CWS requires an extension beyond the 60-day implementation deadline in which to implement the public education tasks in subsection (i)(6)(B)(iv) of this section, the CWS shall obtain approval of such extension from the department in writing prior to the last day of the 60-day implementation deadline. The CWS shall submit to the department at least 30 calendar days prior to the last day of the 60-day implementation period an application requesting an extension beyond the 60-day implementation deadline. Such application shall include the reason or reasons why the CWS is unable to comply with the 60-day implementation deadline and shall be submitted in accordance with subsection (t) of this section. The department may approve the application for an extension beyond the 60-day requirement for completion of the public education tasks in subsection (i)(6)(B)(iv) of this section if needed for implementation purposes on a case-by-case basis.

(vi) A system may discontinue delivery of public education materials if the system has met the lead action level during the most recent 6 month monitoring period conducted pursuant to the provisions of subsection (e)(8) of this section. Such a system shall recommence public education in accordance with subsection (i)(6) of this section if the system subsequently exceeds the lead action level during any monitoring period.

(vii) A CWS may submit an application to the department requesting approval to use only the text specified in subsection (i)(6)(A)(i) of this section in lieu of the text in subsections (i)(6)(A)(i)

and (ii) of this section and to perform the tasks listed in subsections (i)(6)(B)(iv) and (v) of this section in lieu of the tasks listed in subsections (i)(6)(B)(ii) and (iii) of this section. Such application shall include documentation demonstrating that the CWS satisfied the requirements in subsection (i)(6)(B)(vii)(I) and (II) of this section, and shall be submitted in accordance with subsection (t) of this section. The department may approve such application if the department determines that the CWS satisfies the following requirements:

(I) The CWS is a facility, such as a prison or a hospital, where the population served is not capable of or is prevented from making improvements to plumbing or installing point of use treatment devices; and,

(II) The CWS provides water as part of the cost of services provided and does not separately charge for water consumption.

(viii) A CWS serving 3,300 or fewer people may submit an application to the department in accordance with subsection (t) of this section requesting approval to limit certain aspects of the CWS's public education programs as follows:

(I) With respect to the requirement in subsection (i)(6)(B)(ii)(VI) of this section that a system implement at least 3 of the activities listed in subsections (i)(6)(B)(ii)(VI)(1) through (9) of this section, a CWS serving 3,300 or fewer people shall implement at least one of the activities listed in subsections (i)(6)(B)(ii)(VI)(1) through (9) of this section.

(II) With respect to the requirements in subsection (i)(6)(B)(ii)(II) of this section, a CWS serving 3,300 or fewer people may limit the distribution of the public education materials required under subsection (i)(6)(B)(ii)(II) of this section to facilities and organizations served by the system that are most likely to be visited regularly by pregnant women and children.

(III) With respect to the requirement in subsection (i)(6)(B)(ii)(V) of this section, a CWS serving 3,300 or fewer persons that has distributed the required notices to every household served by the CWS may request that the department waive the requirement in subsection (i)(6)(B)(ii)(V) of this section. The CWS shall provide with its application a written certification verifying that the CWS distributed the required notices to every household served by the CWS. The department may approve such request if the department determines that the CWS distributed the required notices to every household served by the CWS.

(C) Notification of Results.

(i) Reporting requirement. All systems shall provide a notice of the individual tap results from lead tap water monitoring carried out under the requirements of subsection (e)(8) of this section to the persons served by the system at the specific sampling site from which the sample was taken (e.g., the occupants of the residence where the tap was tested).

(ii) Timing of notification. A system shall provide the consumer notice as soon as practical, but no later than 30 calendar days after the system learns of the tap monitoring results.

(iii)Content. The consumer notice shall include the results of lead tap water monitoring for the tap that was tested, an explanation of the health effects of lead, list steps consumers can take to reduce exposure to lead in drinking water and contact information for the system. The notice shall also provide the MCLG and the action level for lead and the definitions for these terms from subsection (a) of this section.

(iv) Delivery. The consumer notice shall be provided by mail to persons served at the tap that was tested. If a system wants to provide the consumer notice to persons served at the tap that was tested by a delivery method other than by mail, the system shall submit to the department an application requesting approval to deliver the consumer notice by that method. Such application shall be submitted in accordance with subsection (t) of this section. The department may approve such a method only if such method achieves at least the same coverage as delivery by mail. The system shall provide the consumer notice to consumers at sample taps tested, including consumers who do not receive water bills.

Sec. 23. Subsection (i)(9) through (10) of the Regulations of Connecticut State Agencies is amended to read as follows:

(9) Notice to new [customers] consumers or billing units.

(A) A [community water system] CWS shall give a copy of the most recent public notice for any continuing violation or for the existence of a variance, order, exemption, or other ongoing situations requiring a public notice, to all new billing units or new [customers] consumers, prior to or at the time service begins.

(B) A non-community water system shall continuously post the public notice in conspicuous locations in order to inform new [customers] consumers of any continuing violation, variance, order exemption, or other situation requiring a public notice, for as long as the violation, variance, order, exemption, or other situation persists.

(10) Consumer confidence report requirements.

(A) A [community water system] CWS shall annually prepare a consumer confidence report that contains data collected during the previous calendar year and includes the information specified in 40 CFR 141.153, as amended from time to time, [and] 40 CFR 141.154, as amended from time to time, and 40 CFR 141, Subpart O, Appendix A, as amended from time to time. With respect to the inclusion of lead-specific information in a CWS's consumer confidence report, a CWS shall only utilize the lead-specific educational statement contained in 40 CFR 141.154(d)(1), as amended from time to time.

(B) No later than July 1st of each year, a [community water system] CWS serving 10,000 or more persons shall mail or directly deliver the consumer confidence report to its [customers. a] consumers. A good faith effort to reach the [customers] consumers who do not get water bills, using methods acceptable to the department, shall be made. If a system wants to provide the consumer confidence report to consumers who do not get water bills using a method other than mail or direct delivery, the system shall submit to the department an application requesting approval to deliver the consumer confidence report by that method. Such application shall be submitted in accordance with subsection (t) of this section. Systems serving 100,000 persons or

more shall post the consumer confidence report to a publicly accessible site on the [internet] Internet. A new [community water system] CWS shall deliver [its] the system's first report by July 1st of the year after [its] the system's first full calendar year in operation and annually thereafter.

(C) A [community water system] CWS that sells water to another [community water system] CWS shall deliver the applicable information required in 40 CFR 141.153, as amended from time to time, to the buyer system by April 1st of each year.

(D) [Community water systems] A CWS serving more than 500 persons and fewer than 10,000 persons shall, by July 1st of each year, do the following:

(i) [publish] Publish the consumer confidence report in one or more local newspapers serving the area in which the system's [customers] consumers are located;

(ii) [inform] Inform the [customers] consumers, by mail or door-to-door delivery, that the consumer confidence report is available upon request; and

(iii)[make] Make copies of the consumer confidence report available to the public upon request.

(E) [Community water systems] A CWS serving 500 or fewer persons shall, by July 1st of each year, do the following:

(i) [inform] Inform the [customers] consumers, by mail, door-to-door delivery, or by posting in a location approved by the department that the consumer confidence report is available upon request; and,

(ii) [make] Make copies of the consumer confidence report available to the public upon request.

(F) No later than July 1st of each year, a [community water system] CWS shall mail [three (3)] 3 copies of the consumer confidence report to the department and [one (1)] 1 copy to the local director of health of each city, town, borough or district served by the [community water system] CWS.

(G) No later than August 9th of each year a [community water system] CWS shall submit to the department a certification that the consumer confidence report has been distributed or, when applicable, made available to [customers] consumers, and that the information is correct and consistent with the compliance monitoring data previously submitted to the department. The certification shall be on a form provided by the department.

(H) Each [community water system] CWS shall make [its] the system's consumer confidence reports available to the public upon request.

(I) For the purpose of subsection (i)(10) of this section [19-13-B102(i)(10) of the Regulations of Connecticut State Agencies], the term "detected" [is] means "detected" as defined in 40 CFR 141.151(d), as amended from time to time.

(J) Each [community water system] CWS serving [one thousand] 1,000 or more persons or [two hundred fifty] 250 consumers or more shall include in [its] the system's consumer confidence report educational materials or information on:

(i) [water] Water conservation;

(ii) [water] Water supply source protection methods, including methods to reduce contamination; and,

(iii)[health] Health effects and sources of lead and copper.

Sec. 24. Section 19-13-B102(j)(1) through (11) of the Regulations of Connecticut State Agencies is amended to read as follows:

(1) A MCLG of [zero (0)] 0 is set for the following [microbiological contaminants] microbial pathogens: Giardia lamblia, [cryptosporidium] Cryptosporidium, viruses and [legionella] Legionella.

(2) General Requirements[--Surface Water source] for surface water and [groundwater source under the direct influence of surface water] GWUDI sources.

(A) Each system with a surface water [source] or a [groundwater source under the direct influence of surface water] GWUDI source shall install and properly operate water treatment processes that reliably achieve:

(i) At least 99.9 percent [(3-LOG)] (3 log) removal [and/or] or inactivation of Giardia lamblia cysts, or both, between a point where the raw water is not subject to recontamination by surface water runoff and a point downstream before or at the first [customer] consumer;

(ii) At least 99.99 percent [(4-LOG)] (4 log) removal [and/or] or inactivation of viruses, or both, between a point where the raw water is not subject to recontamination by surface water runoff and a point downstream before or at the first [customer] consumer; and

(iii)[For systems serving 10,000 or more persons, and for systems serving fewer than 10,000 persons, at] At least 99 percent [(2-log)] (2 log) removal of [cryptosporidium] Cryptosporidium between a point where the raw water is not subject to recontamination by surface water runoff and a point downstream before or at the first [customer] consumer.

(B) A system using a surface water [source] or a [groundwater source under the direct influence of surface water] GWUDI source is considered to be in compliance with the requirements of [subparagraph (A) of this subdivision] subsection (j)(2)(A) of this section if [it] the system meets the filtration requirements in subsection (j)(4) of this section and the disinfection requirements in subsection (j)(3)(B) of this section.

(C) Each system using a surface water [source] or a [groundwater source under the direct influence of surface water] GWUDI source shall be operated by [qualified personnel] certified operators pursuant to sections 25-32-7a through 25-32-14 of the Regulations of Connecticut State Agencies.

(D) A system shall install and have operational treatment consisting of disinfection and filtration in

accordance with subsection (j)(2) of this section [19-13-B102(j)(2) of the Regulations of Connecticut State Agencies] within [eighteen (18)] 18 months following the department's determination that treatment is required for a [groundwater] ground water source. Such determination shall be made if that [groundwater] ground water source is at risk of contamination from surface water. [In making this determination, the department shall be guided by its document entitled "Determination Of Groundwater Under The Direct Influence of Surface Water."] As an interim requirement until such treatment is operational, turbidity shall not exceed a monthly average of [one (1) NTU] 1 nephelometric turbidity unit (NTU) or a [two (2)] 2 consecutive day average of [five (5) NTUS] 5 NTUs as monitored pursuant to subsection (e)(7)(H) of this section [19-13-B102(e)(7)(H) of the Regulations of Connecticut State Agencies] and the system supplied by this source shall be free of any waterborne disease outbreak.

(3) Disinfection.

(A) A system that uses a [groundwater source under the direct influence of surface water] GWUDI source, and that does not provide and operate treatment pursuant to subsection (j)(2) of this section [19-13-B102(j)(2) of the Regulations of Connecticut State Agencies], shall provide interim disinfection pursuant to subsection (e)(7)(M) of this section [19-13-B102(e)(7)(M) of the Regulations of Connecticut State Agencies].

(B) A system that uses a surface water [source] or a [groundwater source under the direct influence of surface water] GWUDI source, and that provides and operates treatment pursuant to subsection (j)(2) of this section [19-13-B102(j)(2) of the Regulations of Connecticut state agencies], shall provide disinfection treatment as specified in [the following subclauses of this subparagraph.] subsection (j)(3)(B)(i) through (iii) of this section:

(i) The disinfection treatment shall be sufficient to ensure that the total treatment processes of that source achieve at least 99.9 percent [(3-LOG)] (3 log) inactivation [and/or] or removal of Giardia lamblia cysts, or both, and at least 99.99 percent [(4-LOG)] (4 log) inactivation [and/or] or removal of viruses, or both. Disinfection effectiveness shall be determined by the calculation of "CT" values as specified in the [most recent edition] March 1991 edition of [the EPA] EPA's "Guidance Manual For Compliance With The Filtration And Disinfection Requirements For Public Water Systems Using Surface Water Sources." A copy of such guidance manual may be obtained from EPA at http://www.epa.gov/safewater/mdbp/guidsws.pdf.

(ii) The [residual disinfectant concentration] RDC in the water entering the distribution system, measured as specified in 40 CFR 141.74(a)(2), as amended from time to time, and subsection (e)(7)(S)(ii) of this section [19-13-B102(e)(7)(S)(ii) of the Regulations of Connecticut State Agencies] shall not be less than 0.2 mg/l for more than [four (4)] 4 hours.

(iii)The [residual disinfectant concentration] RDC in the distribution system, measured as free chlorine, combined chlorine, or chlorine dioxide, as specified in 40 CFR 141.74(a)(2), as amended from time to time, and subsection (e)(7)(S)(ii) of this section [19-13-B102(e)(7)(S)(ii) of the Regulations of Connecticut state Agencies], shall not be undetectable in more than [five] 5 percent [(5%)] of the samples each month[,] for any [two (2)] 2 consecutive months that the system serves water to the public. Water in the distribution system with a heterotrophic bacteria concentration less than or equal to [five hundred

[(500)/ML] 500/ml, measured as heterotrophic plate count (HPC) as specified in 40 CFR 141.74(a)(1), as amended from time to time, is deemed to have a detectable disinfectant residual for purposes of determining compliance with this requirement in subsection (j)(3)(B)(iii) of this section. The value "V" in the following formula shall not exceed [five] 5 percent [(5%)] in [one (1)] 1 month, for any [two (2)] 2 consecutive months.

$$V = \frac{C + D + E}{A + B} \times 100$$

Where:

A = Number of instances where the [residual disinfectant concentration] RDC is measured;

B = Number of instances where the [residual disinfectant concentration] RDC is not measured but [heterotrophic bacteria plate count (HPC)] HPC is measured;

C = Number of instances where the [residual disinfectant concentration] RDC is measured but not detected and no HPC is measured;

D = Number of instances where no [residual disinfectant concentration] RDC is detected and where the HPC is greater than [five hundred (500)/ml] 500/ml; and

E = Number of instances where the [residual disinfectant concentration] RDC is not measured and HPC is greater than [five hundred (500)/ml] 500/ml.

(4) Filtration. A system that uses a surface water [source] or a [groundwater source under the direct influence of surface water] GWUDI source, and that provides and operates treatment pursuant to subsection (j)(2) of this section [19-13-B102(j)(2)], shall provide filtration which complies with the requirements of [subparagraphs (A), (B), (C), or (D) of this subdivision] subsection (j)(4)(A), (B), (C), or (D) of this section.

(A) Conventional filtration treatment or direct filtration.

(i) For systems [serving 10,000 or more persons and using conventional or direct filtration, and for systems serving fewer than 10,000 persons and] using conventional or direct filtration, the turbidity level of representative samples of a system's combined filtered water shall be less than or equal to 0.3 NTU in at least [ninety five] 95 percent [(95%)] of the measurements taken each month pursuant to subsection (e)(7)(S)(i) of this section [19-13-B102(e)(7)(S)(i) of the Regulations of Connecticut State Agencies].

(ii) The turbidity level of representative samples of a system's combined filtered water (treatment effluent) shall at no time exceed [one (1)] 1 NTU, measured pursuant to subsection (e)(7)(S)(i) of this section [19-13-B102(e)(7)(S)(i) of the Regulations of Connecticut State Agencies].

(iii) A system required to submit a report to the department for a self assessment or comprehensive performance evaluation[, pursuant to] under subsection (h)(6)(B)(i) of this section [19- 13-B102(h)(6)(B)(i) of the Regulations of Connecticut State Agencies,] shall implement the improvements identified in accordance with a schedule as approved in writing by the

department.

(B) Slow sand filtration. For systems using slow sand filtration, the turbidity level of representative samples of a system's combined filtered water shall be less than or equal to [one (1)] 1 NTU in all of the measurements taken each month, measured as specified in [40 CFR 141.74(a)(4)] 40 CFR 141.74(a)(1) and (c)(1), as amended from time to time, and subsection (e)(7)(S)(i) of this section.

(C) Diatomaceous earth filtration. For systems using diatomaceous earth filtration, the turbidity level of representative samples of a system's combined filtered water shall be less than or equal to [one (1)] 1 NTU in all of the measurements taken each month, measured as specified in [40 CFR 141.74(a)(4)] 40 CFR 141.74(a)(1) and (c)(1), as amended from time to time, and subsection (e)(7)(S)(i) of this section.

(D) Other filtration technologies. A system may use filtration technology not listed in [subparagraphs (A) through (C) of this subdivision] subsection (j)(4)(A) through (C) of this section if [it] the system demonstrates to the department, using pilot plant studies or other means, that the alternative filtration technology, in combination with disinfection treatment that meets the requirements of [subdivision (3)(B) of this] subsection (j)(3)(B) of this section, consistently achieves [ninety nine and nine tenths] 99.9 percent [(99.9%)] (3 log) removal [and/or] or inactivation of Giardia lamblia cysts, or both, and [ninety nine and ninety nine hundredths] 99.99 percent [(99.99%)] (4 log) removal [and/or] or inactivation of viruses, or both, and 99 percent (2 log) removal of Cryptosporidium oocysts, and the department approves the system's use of such alternative filtration treatment. To request approval to use alternative filtration technology, the system shall submit an application to the department in accordance with subsection (t) of this section. If the department approves the system's use of the alternative filtration technology, the department shall set turbidity performance requirements that the system shall meet at least 95 percent of the time and that the system shall not exceed at any time a level that consistently achieves 99.9 percent (3 log) removal or inactivation of Giardia lamblia cysts, or both, 99.99 percent (4 log) removal or inactivation of viruses, or both, and 99 percent removal of Cryptosporidium oocysts. For a system that makes this demonstration, the requirements of [subparagraphs (3)(B) and (4)(A) of subsection] subsections (j)(3)(B) and (j)(4)(A) of this section apply.

(E) A system serving 10,000 or more persons shall achieve [ninety nine] 99 percent [(99%)] (2 log) removal of [cryptosporidium] Cryptosporidium. Systems serving fewer than 10,000 persons shall achieve [ninety nine] 99 percent [(99%)] (2 log) removal of [cryptosporidium] Cryptosporidium. A system is deemed to be in compliance with this requirement if [it] the system meets the combined filtered water turbidity level requirements of [subparagraphs (4)(A) through (4)(D) of this subsection] subsections (j)(4)(A) through (D) of this section.

(F) Any system that recycles spent filter backwash water, thickener supernatant, or liquids from dewatering processes shall return these flows through the processes of a system's existing conventional or direct filtration or at an alternate location approved by the department by June 8, 2004. [If capital improvements are required to modify the recycle location to meet this requirement, all capital improvements shall be completed, as approved by the department, no later than June 8, 2006.]

(5) Treatment techniques for acrylamide and epichlorohydrin. Each [public water] system shall certify annually in writing to the department that when acrylamide and epichlorohydrin are used in drinking water systems, the combination of dose and monomer level does not exceed the levels specified in 40 CFR 141.111, as amended from time to time.

(6) General requirements[—] for the control of lead and copper.

(A) Applicability [and effective dates]. [(i)] The requirements [of this subsection] in subsections (e)(7)(K), (e)(8) through (e)(10), (h)(5), (i)(6), (j)(6) through (j)(10), and (*l*)(1)(G) of this section constitute the drinking water regulations for lead and copper. Unless otherwise indicated, each of the provisions of [this] subsection (j)(6) of this section applies to [community water systems] CWSs and [non-transient, non-community water systems (hereinafter referred to as "water systems" or "systems")] NTNCs.

[(ii) The requirements set forth in subsections (e) (7) (L), (e) (8) through (e) (10), (h) (5) and (*l*) (1) (G) of this section shall take effect July 7, 1991. The requirements in subdivisions (7) through (10) of this subsection and subsection (i) (6) of this section shall take effect December 7, 1992.]

(B) Lead and copper action levels.

(i) The lead action level is exceeded if the concentration of lead in more than [ten] 10 percent [(10%)] of tap water samples collected during any monitoring period conducted in accordance with subsection [(e) (8)] (e)(8) of this section is greater than 0.015 mg/l (i.e., if the "90th percentile" lead level is greater than 0.015 mg/l).

(ii) The copper action level is exceeded if the concentration of copper in more than [ten] 10 percent [(10%)] of tap water samples collected during any monitoring period conducted in accordance with subsection [(e) (8)] (e)(8) of this section is greater than 1.3 mg/l (i.e., if the "90th percentile" copper level is greater than 1.3 mg/l).

(iii)The 90th percentile lead and copper levels shall be computed as follows:

(I) The results of all lead or copper samples taken during a monitoring period shall be placed in ascending order from the sample with the lowest concentration to the sample with the highest concentration. Each sampling result shall be assigned a number, ascending by single integers beginning with the number [one (1)] 1 for the sample with the lowest contaminant level. The number assigned to the sample with the highest contaminant level shall be equal to the total number of samples taken.

(II) The number of samples taken during the monitoring period shall be multiplied by 0.9.

(III) The contaminant concentration in the numbered sample yielded by the calculation [above] in subsection (j)(6)(B)(iii)(II) of this section is the 90th percentile contaminant level.

(IV) For [water] systems serving fewer than [one hundred (100)] 100 people that collect [five (5)] 5 samples per monitoring period, the 90th percentile is computed by taking the average of the highest and second highest concentrations.

(V) For a system that collects fewer than 5 samples in accordance with subsection (e)(8)(C) of this section, the sample result with the highest concentration is considered the 90th percentile value.

(C) Corrosion control treatment requirements.

(i) All [water] systems shall install and operate optimal corrosion control treatment [as defined in subsection (a) (44) of this section].

(ii) Any [public] system that complies with the applicable corrosion control treatment requirements approved by the department under [subdivisions (7) and (8) of this subsection] subsections (j)(7) and (8) of this section shall be deemed to be in compliance with the treatment requirement contained in [subparagraph (D) (i) of this subdivision] subsection (j)(6)(C)(i) of this section.

(D) Source water treatment requirements. Any system exceeding the lead or copper action level shall implement all applicable source water treatment requirements approved by the department under [subdivision (9) of this] subsection (j)(9) of this section.

(E) Lead service line replacement requirements. Any system exceeding the lead action level after implementation of applicable corrosion control and source water treatment requirements shall complete the lead service line replacement requirements contained in [subdivision (10) of this] subsection (j)(10) of this section.

(F) Public education requirements.

(i) [Any system exceeding the lead action level shall implement the public education requirements contained in 40 CFR 141.85 as amended within sixty (60) days after the end of the monitoring period in which the exceedance occurs.] Pursuant to subsection (i)(6) of this section, all systems shall provide a consumer notice of lead tap water monitoring results to persons served at the sites (taps) that are tested. Any system exceeding the lead action level shall implement the public education requirements.

(ii) Any system exceeding the copper action level shall notify consumers as required in subsection (i)(5)(A) of this section [19-13-B102(i)(5)(A) of the Regulations of Connecticut State Agencies].

(G) Monitoring and analytical requirements. Tap water monitoring for lead and copper, monitoring for water quality parameters, source water monitoring for lead and copper, and analyses of the monitoring results under [this] subsection (j)(6) of this section shall be completed in compliance with subsections [(e) (7) (L)] (e)(7)(K) and [(e) (8)] (e)(8) through [(e) (10)] (e)(10), inclusive, of this section.

(H) Reporting requirements. Systems shall report to the department any information required by the treatment provisions of [this] subsection (j)(6) of this section and subsection (h)(5) of this section.

(I) Recordkeeping requirements. Systems shall maintain records in accordance with subsection [(*l*) (1) (G)] (*l*)(1)(G) of this section.

(J) Violation of drinking water regulations. Failure to comply with the applicable requirements of subsections [(e) (7) (L)] (e)(7)(K), [(e) (8)] (e)(8) through [(e) (10)] (e)(10), inclusive, [(h) (5)] (h)(5), [(i) (6)] (i)(6), [(j) (6)] (j)(6) through [(j) (10)] (j)(10), inclusive, and [(*l*) (1) (G)] (*l*)(1)(G) of this section, including requirements established by the department pursuant to these provisions, shall constitute a violation of the drinking water regulations for lead [and/or] or copper, or both.

(7) Applicability of corrosion control treatment steps to small, medium-size and large [water] systems. Unless otherwise indicated, the provisions of subsection (j)(7) of this section apply to CWSs and NTNCs.

(A) Systems shall complete the applicable corrosion control treatment requirements described in [subdivision (8) of this] subsection (j)(8) of this section by the deadlines established in [this subdivision] subsection (j)(7) of this section.

(i) A large system (serving greater than [fifty thousand (50,000)] 50,000 persons) shall complete the corrosion control treatment steps specified in [subparagraph (D) of this subdivision] subsection (j)(7)(D) of this section, unless [it] the system is deemed by the department to have optimized corrosion control under [subparagraph (B) (ii) or (B) (iii) of this subdivision] subsections (j)(7)(B)(ii) or (iii) of this section.

(ii) A small system (serving less than or equal to 3,300 persons) and a medium-size system (serving greater than 3,300 and less than or equal to 50,000 persons) shall complete the corrosion control treatment steps specified in [subparagraph (E) of this subdivision] subsection (j)(7)(D) of this section, unless [it] the system is deemed by the department to have optimized corrosion control under [subparagraph (B) (i), (B) (ii), or (B) (iii) of this subdivision] subsections (j)(7)(B)(i), (ii) or (iii) of this section.

(B) Deemed optimized corrosion control. A system is deemed to have optimized corrosion control and is not required to complete the applicable corrosion control treatment steps identified in [this subdivision] subsection (j)(7) of this section if the system satisfies one [(1)] of the criteria specified in [sub-clauses (i) through (iii) of this subparagraph] subsections (j)(7)(B)(i) through (iii) of this section. Any such system deemed to have optimized corrosion control under [this subparagraph] subsection (j)(7)(B) of this section, and which has treatment in place, shall continue to operate and maintain optimal corrosion control treatment and meet any requirements that the department determines appropriate to ensure optimal corrosion control treatment is maintained.

(i) Deemed to have optimized corrosion control by meeting lead and copper action levels. A small or medium-size [water] system is deemed to have optimized corrosion control if the system meets the lead and copper action levels during each of [two (2)] 2 consecutive [six (6)] 6 month monitoring periods conducted in accordance with subsection (e)(8) of this section [19-13-B102(e)(8) of the Regulations of Connecticut State Agencies].

(ii) Deemed to have optimized corrosion control by the department. Any [water] system may be deemed by the department to have optimized corrosion control treatment if the system demonstrates to the satisfaction of the department that [it] the system has conducted activities

equivalent to the corrosion control steps applicable to such system under [this subdivision] subsection (j)(7) of this section. If the department makes this determination, [it] the department shall provide the system with written notice explaining the basis for [its] the department's decision and shall specify the water quality control parameters representing optimal corrosion control in accordance with [subdivision (8)(F) of this] subsection (j)(8)(F) of this section. [Water systems] Systems deemed to have optimized corrosion control under [this subclause] subsection (j)(7)(B)(ii) of this section shall operate in compliance with the department-designated optimal water quality control parameters in accordance with subsection (j)(8)(G) of this section [19-13-B102(j)(8)(G) of the Regulations of Connecticut State Agencies] and continue to conduct lead and copper tap and water quality parameter sampling in accordance with [sections 19-13- B102(e)(8)(F) and 19-13-B102(e)(9)(D) of the Regulations of Connecticut State Agencies] subsections (e)(8)(D)(iii) and (e)(9)(D) of this section, respectively. A system shall provide the department with the following information in order to support a determination under [this subparagraph] subsection (j)(7)(B) of this section: [the]

(I) The results of all test samples collected for each of the water quality parameters listed in [subdivision (8)(C)(iii) of this] subsection (j)(8)(C)(iii) of this section; [a]

(II) A report explaining the test methods used by the [water] system to evaluate the corrosion control treatments listed in [subdivision (8)(C)(i) of this] subsection (j)(8)(C)(i) of this section, the results of all tests conducted, and the basis for the system's selection of optimal corrosion control treatment[, a];

(III) A report explaining how corrosion control has been installed and how it is being maintained to insure minimal lead and copper concentrations at [consumers] consumers' taps; and [the]

(IV) The results of tap water samples collected in accordance with subsection (e)(8) of this section [19-13-B102(e)(10)(B) of the Regulations of Connecticut State Agencies] at least once every [six (6)] 6 months for [one (1)] 1 year after corrosion control has been installed.

(iii) Deemed to have optimized corrosion control based on tap water and source water monitoring results. Any [water] system is deemed to have optimized corrosion control if [it] the system submits results of tap water monitoring conducted in accordance with subsection (e)(8) of this section [19-13-B102(e)(8) of the Regulations of Connecticut State Agencies] and source water monitoring conducted in accordance with subsection (e)(10) of this section [19-13-B102(e)(10) of the Regulations of Connecticut State Agencies] that demonstrate for [two (2)] 2 consecutive [six (6)] 6 month monitoring periods that the difference between the 90th percentile tap water lead level computed under [subdivision (6)(C)(iii) of this] subsection (j)(6)(B)(iii) of this section and the highest source water lead concentration[,] is less than the [practical quantification level] PQL for lead of 0.005 mg/l.

(I) Those systems whose highest source water lead level is below the method detection limit may also be deemed to have optimized corrosion control under [this subclause] subsection (j)(7)(B)(iii) of this section if the 90th percentile tap water lead level is less than or equal to the [practical quantification level] PQL for lead for [two] 2 consecutive [six (6)] 6 month monitoring periods.

(II) Any [water] system deemed to have optimized corrosion control in accordance with [this subclause] subsection (j)(7)(B)(iii) of this section shall continue monitoring for lead and copper at the tap, no less frequently than once every [three] 3 calendar years using the reduced number of sites specified in subsection (e)(8)(C) of this section [19-13-B102(e)(8)(C) of the Regulations of Connecticut State Agencies] and collecting the samples at times and locations specified in subsection (e)(8)(D)(iv) of this section [19-13-B102(e)(8)(G) of the Regulations of Connecticut State Agencies].

(III) Any [water] system deemed to have optimized corrosion control pursuant to [this sub-clause] subsection (j)(7)(B)(iii) of this section shall [obtain the approval of] notify the department in writing[,] pursuant to subsection (h)(5)(A)(iii) of this section [19-13-B102(d)(2) of the Regulations of Connecticut State Agencies, prior to] of any upcoming long-term change in treatment or [the] addition of a new source as described in subsection (h)(5)(A)(iii) of this section. Before a system adds a new source or implements a long-term change in treatment, the system shall submit an application to the department requesting approval of the addition of a new source or long-term change in treatment. Such application shall include a description of the change or addition, and shall be submitted in accordance with subsection (t) of this section. A system shall not add a new source or implement a long-term change in treatment until the system has obtained the department's approval. For purposes of this section, long-term change in treatment includes, but is not limited to, the addition of a new treatment process or modification of an existing treatment process. The department may require any such system to conduct additional monitoring or to take other action the department in the department's discretion deems appropriate to ensure that such system maintains minimal levels of corrosion in [its] the system's distribution system.

(IV) A system is not deemed to have optimized corrosion control under [this subclause] subsection (j)(7)(B)(iii) of this section, and shall implement corrosion control treatment pursuant to subsection (j)(7)(B)(iii)(V) of this section, unless [it] the system meets the copper action level.

(V) Any system that is required to implement corrosion control because [it] the system is no longer deemed to have optimized corrosion control under [this subclause] subsection (j)(7)(B)(iii) of this section shall implement corrosion control treatment in accordance with the deadlines in subsection (j)(7)(D) of this section [19-13-B102(j)(7)(E) of the Regulations of Connecticut State Agencies]. [Any such large system shall adhere to the schedule specified in that subparagraph for medium-size systems, with the] The time periods for completing each step [being] are determined [as of] by the date the system is no longer deemed to have optimized corrosion control under [this sub-clause] subsection (j)(7)(B)(iii) of this section.

(C) Any small [water system] or medium-size [water] system that is required to complete the corrosion control steps because [it] the system exceeded the lead or copper action level may cease completing the treatment steps whenever the system meets both action levels during each of [two (2)] 2 consecutive monitoring periods conducted pursuant to subsection (e)(8) of this section [19-13-B102(e)(8) of the Regulations of Connecticut State Agencies] and submits the [result] results to the department. If any such [water] system thereafter exceeds the lead or copper action level

during any monitoring period, the system (or the department, as the case may be) shall recommence completion of the applicable treatment steps, beginning with the first treatment step that was not previously completed in its entirety. The department may in the department's discretion require a system to repeat treatment steps previously completed by the system where the department determines that this is necessary to properly implement the treatment requirements of [this subdivision] subsection (j)(7) of this section. The department shall notify the system in writing of such a determination and explain the basis for [its] the department's decision. The requirement for any small or medium-size system to implement corrosion control treatment steps in accordance with subsection (j)(7)(D) of this section [19-13-B102(j)(7)(E) of the Regulations of Connecticut State Agencies], including systems deemed to have optimized corrosion control under subsection (j)(7)(B) of this section [19-13-B102(j)(7)(B) of the Regulations of Connecticut State Agencies], is triggered whenever any small or medium-size system exceeds the lead or copper action level.

[(D) Treatment steps and deadlines for large systems. Except as provided in subparagraphs (B)(ii) and (B)(iii) of this subdivision, large water systems shall complete the following corrosion control treatment steps (described in the referenced portions of subdivision (8)(A) of this subsection and sections 19-13-B102(e)(8) and (9) of the Regulations of Connecticut State Agencies) by the indicated dates.

(i) Step 1: The system shall conduct initial monitoring (sections 19-13-B102(e)(8)(D) and (e)(9)(B) of the Regulations of Connecticut State Agencies) during two (2) consecutive six (6) month monitoring periods by January 1, 1993.

(ii) Step 2: The system shall complete and submit corrosion control studies and proposed treatment to the department (subdivision (8)(c) of this subsection) by July 1, 1994.

(iii) Step 3: The department shall review and either approve or reject, with written reasons, the proposed optimal corrosion control treatment in accordance with subdivision (8)(D) of this subsection by January 1, 1995. If rejected, the system shall revise proposed treatment and resubmit to the department for review by July 1, 1995.

(iv) Step 4: The system shall install the approved optimal corrosion control treatment in accordance with subdivision (8)(E) of this subsection by January 1, 1997.

(v) Step 5: The system shall complete follow-up sampling (sections 19-13- B102(e)(8)(E) and (e)(9)(C) of the Regulations of Connecticut State Agencies) by January 1, 1998.

(vi) Step 6: The department shall review installation of treatment and designate optimal water quality control parameters in accordance with subdivision (8)(F) of this subsection by July 1, 1998.

(vii) Step 7: The system shall operate in compliance with the department-specified optimal water quality control parameters (subdivision (8)(G) of this subsection) and continue to conduct tap sampling (sections 19-13-B102(e)(8)(F) and (e)(9)(D) of the Regulations of Connecticut State Agencies).]

[(E)] (D) Treatment steps and deadlines [for small water systems and medium-size water systems].

Except as provided in [subparagraph (B) of this subdivision] subsection (j)(7)(B) of this section, [small water systems and medium-size water] systems shall complete the following corrosion control treatment steps (described in the referenced portions of [subdivision (8) of this] subsection (j)(8) of this section and [sections 19-13-B102(e)(8) and (9) of the Regulations of Connecticut State Agencies] subsections (e)(8) and (9) of this section) by the indicated time periods.

(i) Step 1: The system shall conduct initial tap water sampling in accordance with [sections 19-13-B102(e)(8)(D) and (e)(9)(B) of the Regulations of Connecticut State Agencies] subsections (e)(8)(D) and (e)(9)(B) of this section until the system either exceeds the lead or copper action level or becomes eligible for reduced monitoring under subsection (e)(8)(D)(iv) of this section [19-13-B102(e)(8)(G) of the Regulations of Connecticut State Agencies]. A [water] system exceeding the lead or copper action level shall [propose] submit to the department for review and approval the system's recommended optimal corrosion control treatment [in accordance with subdivision (8)(A) of this subsection] within [six (6)] 6 months after the end of the [tap] monitoring period[, pursuant to section 19-13- B102(e)(8)(D) through (G) of the Regulations of Connecticut State Agencies,] during which [in which the exceedance occurred] the system exceeds one of the action levels. The system's recommended optimal corrosion control treatment shall be submitted to the department in accordance with subsection (t) of this section. The department may, in the department's discretion, approve the system's recommended optimal corrosion control treatment. If the department does not approve the system's recommended corrosion control treatment, the department shall designate the corrosion control treatment that the system is required to implement.

(ii) Step 2: Within [twelve (12)] 12 months after the end of the monitoring period during which a [water] system exceeds the lead or copper action level, the department may require the system to perform corrosion control studies in accordance with [subdivision (8)(B) of this] subsection (j)(8)(B) of this section. If the department requires the system to perform such studies, the system shall submit copies such studies to the department for the department's review and approval in accordance with subsection (t) of this section. If the department does not require the system to perform such studies, the system shall [review and either approve or reject with written reasons the] install the system's department-approved optimal corrosion control treatment [in accordance with subdivision (8)(D) of this], or, if the department did not approve the system's recommended corrosion control treatment, the corrosion control treatment designated by the department (as described in subsection (j)(8)(D)(i) of this section) [proposed in step 1 and the system shall obtain department approval for its proposed optimal corrosion control treatment] within the following time frames:

(I) For large systems, within 6 months after the end of the monitoring period during which such system exceeds the lead and copper action level;

(II) [for] For medium-size systems, within [eighteen (18)] 18 months after [it] the end of the monitoring period during which such system exceeds the lead or copper action level; and

(III) [for] For small systems, within [twenty-four (24)] 24 months after the end of the monitoring period during which such system such system exceeds the lead or copper action level.

(iii)Step 3: If the department requires a [water] system to perform corrosion control studies under

[(ii) of this subparagraph] Step 2, subsection (j)(7)(D)(ii) of this section, the system shall complete the studies in accordance with [subdivision (8)(C) of this] subsection (j)(8)(C) of this section [and propose optimal corrosion control treatment] within [eighteen (18)] 18 months after the department requires that such studies be conducted. In the system's corrosion control study, the system shall recommend an optimal corrosion control treatment for department approval.

(iv) Step 4: If the [water] system has performed corrosion control studies under [(ii) of this subparagraph] Step 2, subsection (j)(7)(D)(ii) of this section, the system shall submit such corrosion control studies, including the system's recommended optimal corrosion control treatment, to the department [shall] for review [and either approve or reject with written reasons optimal corrosion control treatment in accordance with subdivision (8)(D) of this subsection] and approval in accordance with subsection (t) of this section. [The system shall obtain department approval for its proposed optimal corrosion control treatment within six (6) months after completion of (iii) of this subparagraph.] Within 6 months after the system's completion of Step 3 in subsection (j)(7)(D)(iii) of this section, the department may in the department's discretion approve the system's recommended optimal corrosion control treatment or, not approve the system's recommended corrosion control treatment and require the system to implement the corrosion control treatment designated by the department, unless the department requires additional information from the system or time to complete the department's review.

(v) Step 5: The [water] system shall install and have operational the [approved] optimal corrosion control treatment approved by the department or, if the department did not approve the system's recommended corrosion control treatment, the corrosion control treatment designated by the department ([subdivision (8)(E) of this] subsection (j)(8)(E) of this section) within [twenty-four (24)] 24 months after the department approves or designates such treatment.

(vi) Step 6: The [water] system shall complete follow-up sampling in accordance with [sections 19-13-B102(e)(8)(E) and (e)(9)(C) of the Regulations of Connecticut State Agencies] subsections (e)(8)(D)(ii) and (e)(9)(C) of this section within [thirty-six (36)] 36 months after the department either approves the system's recommended optimal corrosion control treatment or the department designates an optimal corrosion control treatment.

(vii) Step 7: The department shall review the [water] system's installation of treatment and designate optimal water quality control parameters in accordance with [subdivision(8)(F)of this] subsection (j)(8)(F) of this section within [six (6)] 6 months after completion of [(vi), of this subparagraph] Step 6, subsection (j)(D)(vi) of this section.

(viii) Step 8: The [water] system shall operate in compliance with the department-designated optimal water quality control parameters [(subdivision (8)(G) of this subsection)] under subsection (j)(8)(G) of this section and continue to conduct tap sampling [in accordance with sections 19-13-B102(e)(8)(F) and (e)(9)(D) of the Regulations of Connecticut State Agencies] pursuant to subsection (e)(8)(D)(iii) and (e)(9)(D) of this section.

(8) Description of corrosion control treatment requirements. Each system shall complete the corrosion control treatment requirements described in [this subdivision] subsection (j)(8) of this section that are

applicable to such system under [subdivision (7) (A) of this] subsection (j)(7) of this section. Unless otherwise indicated, the provisions of subsection (j)(8) of this section apply to CWSs and NTNCs.

(A) [Water system's proposal] System's recommendation regarding corrosion control treatment. Based upon the results of lead and copper tap monitoring and water quality parameter monitoring, small [water systems] and medium-size [water] systems exceeding the lead or copper action level shall propose installation of one [(1)] or more of the corrosion control treatments in [subparagraph (C) (i) of this subdivision] subsection (j)(8)(C)(i) of this section. The department may require the system to conduct additional water quality parameter monitoring in accordance with subsection [(e) (9) (B)] (e)(9)(B) of this section to assist the department in reviewing the system's proposal.

(B) Department's decision to require studies of corrosion control treatment (applicable to small [water systems] and medium-size [water] systems). The department may require any small [water systems] or medium-size [water] system that exceeds the lead or copper action level to perform corrosion control studies under [subparagraph (C) of this subdivision] subsection (j)(8)(C) of this section to identify optimal corrosion control treatment for the [water] system.

(C) Performance of corrosion control studies.

(i) Any [public water] system performing corrosion control studies shall evaluate the effectiveness of each of the following treatments, and, if appropriate, combinations of the following treatments to identify the optimal corrosion control treatment for that system: [, alkalinity]

(I) Alkalinity and pH adjustment [, calcium] ;

(II) Calcium hardness adjustment [,] ; and, [the]

(III) The addition of a phosphate or silicate-based corrosion inhibitor at a concentration sufficient to maintain an effective residual concentration in all test tap water samples.

(ii) The [water] system shall evaluate each of the corrosion control treatments using either pipe rig/loop tests, metal coupon tests, partial-system tests, or analyses based on documented analogous treatments with other systems of similar size, water chemistry and distribution system configuration.

(iii) The [water] system shall measure the following water quality parameters in any tests conducted under [this subparagraph] subsection (j)(8)(C) of this section before and after evaluating the corrosion control treatments listed [above] in subsection (j)(8)(C)(i) of this section: [lead, copper, pH, alkalinity, calcium, conductivity, orthophosphate]

(I) Lead;

(II) Copper;

(III) pH;

(IV) Alkalinity;

(V) Calcium;

(VI) Conductivity;

(VII) Orthophosphate (when an inhibitor containing a phosphate compound is used)[silicate];

(VIII) Silicate (when an inhibitor containing a silicate compound is used) [, water] ; and,

(IX) Water temperature.

(iv) The [water] system shall identify all chemical or physical constraints that limit or prohibit the use of a particular corrosion control treatment and document such constraints with at least one [(1)] of the following: [data]

(I) Data and documentation showing that a particular corrosion control treatment has adversely affected other water treatment processes when used by another [water] system with comparable water quality characteristics; [and/or data] or

(II) Data and documentation demonstrating that the [water] system has previously attempted to evaluate a particular corrosion control treatment and has found that the treatment is ineffective or adversely affects other water quality treatment processes; [.] or

(III) Data and documentation in subsections (j)(8)(C)(iv)(I) and (II) of this section.

(v) The [water] system shall evaluate the effect of the chemicals used for corrosion control treatment on other water quality treatment processes.

(vi) On the basis of an analysis of the data generated during each evaluation, the [water] system shall [propose] submit to the department [in writing the] for approval the system's recommended treatment option that the corrosion control studies indicate constitutes the optimal corrosion control treatment for that system. [The water system] Such application shall [provide a rationale for its proposal] include the reason or reasons for the system's recommended treatment option, [along with] including all supporting documentation specified in [this subparagraph] subsection (j)(8)(C)(i) through (v) of this section, and shall be submitted in accordance with subsection (t) of this section.

(D) Department [review] designation of optimal corrosion control treatment.

(i) Based upon consideration of available information including, where applicable, studies performed under [subparagraph (C) of this subdivision] subsection (j)(8)(C) of this section and a [water] system's [proposed] recommended treatment [alternative] option, the department [shall] may in the department's discretion either approve or reject with written reasons the system's application requesting approval of the system's corrosion control treatment option [proposed by the system]. If rejected, the [water] system shall propose an alternative corrosion control treatment(s) from among those listed in [subparagraph (c)(i) of this subdivision] subsection (j)(8)(C)(i) of this section, or revise the original proposal based on the department's recommendations, and then resubmit the proposal or revision for department review [in

consideration for approval] and approval in accordance with subsection (t) of this section.

(ii) The department shall notify the system of [its] the department's decision [optimal corrosion control treatment] in writing to approve or reject the system's application submitted to the department under subsection (j)(8)(D)(i) of this section and explain the basis for [this] the department's determination. If the department requests additional information to aid [its] the department's review, the [water] system shall provide the information.

(E) Installation of optimal corrosion control. Each system shall properly install and operate throughout [its] the system's distribution system the optimal corrosion control treatment approved by the department under [subparagraph (D) of this subdivision] subsection (j)(8)(D) of this section.

(F) Department review of treatment and specification of optimal water quality control parameters.

(i) The department shall evaluate the results of all lead and copper tap water samples and water quality parameter samples submitted by the [water] system and determine whether the system has properly installed and operated the optimal corrosion control treatment approved by the department in accordance with [subparagraph (D) of this subdivision] subsection (j)(8)(D) of this section. After the department reviews the results of tap water and water quality parameter monitoring by the system, both before and after the system installs optimal corrosion control treatment, the system shall operate in accordance with specific parameter values defined by the department that are within the following water quality parameter ranges in subsections (j)(8)(F)(i)(I) though (VI) of this section, unless the [water] system can demonstrate to the satisfaction of the department that other measurable parameter values are necessary for optimal corrosion control treatment:

[(i)] (I) For pH measured at each entry point to the distribution system, a range of [seven (7.0)] 7.0 to [ten (10.0) must] 10.0 shall be maintained;

[(ii)] (II) A minimum pH value, measured in all tap water samples. Such value shall be equal to or greater than [seven (7.0)] 7.0, unless the department determines that meeting a pH level of 7.0 is not technologically feasible or is not necessary for the system to optimize corrosion control;

[(iii)] (III) If a corrosion inhibitor is used, concentrations for the inhibitor, measured at each entry point to the distribution system and in all tap water samples, shall be maintained within the following ranges:

Corrosion Inhibitor	**Range (mg/l)**
Silicates	2.0 - 12.0
Orthophosphate	0.1 - 10.0

[(iv)] (IV) If alkalinity is adjusted as part of optimal corrosion control treatment, a range of concentrations for alkalinity, measured at each entry point to the distribution system and in all tap water samples, shall be determined based on the results of tap water and water quality parameter monitoring; and,

[(v)] (V) If calcium carbonate stabilization is used as part of corrosion control, a range of concentrations for calcium, measured in all tap water samples, shall be determined based on the results of tap water and water quality parameter monitoring.

[(vi)] (ii) The values for the applicable water quality control parameters listed in [this subparagraph] subsection (j)(8)(F)(i) of this section shall be those that the department determines to reflect optimal corrosion control treatment for the system. The department may in the department's discretion designate values for additional water quality control parameters determined by the department to reflect optimal corrosion control for the system. The department shall notify the system in writing of these determinations and explain the basis for [its] the department's decisions.

(G) Continued operation and monitoring. All systems optimizing corrosion control shall continue to operate and maintain optimal corrosion control treatment, including maintaining water quality parameters at or above minimum values or within ranges designated by the department under subsection (j)(8)(F)(i) of this section [19-13-B102(j)(8)(F) of the Regulations of Connecticut State Agencies,] in accordance with [this subparagraph] subsection (j)(8)(G) of this section for all samples collected under [sections 19-13-B102(e)(9)(D) through (F)] subsections (e)(9)(D) through (F), inclusive, of [the Regulations of Connecticut State Agencies] this section. Compliance with the requirements of [this subparagraph] subsection (j)(8)(G) of this section shall be determined every [six] 6 months, as specified under subsection (e)(9)(D) of this section [19-13-B102(e)(9)(D) of the Regulations of Connecticut State Agencies]. A [water] system is out of compliance with the requirements of [this subparagraph] subsection (j)(8)(G) of this section for a [six (6)] 6 month period if [it] the system has excursions for any department-specified parameter on more than [nine (9)] 9 calendar days during the period. An excursion occurs whenever the daily value for one or more of the water quality parameters measured at a sampling location is below the minimum value or outside the range designated by the department. Daily values are calculated as indicated in [subclauses (i) through (iii) of this subparagraph] subsections (j)(8)(G)(i) through (iii) of this section. The department has discretion to delete results of obvious sampling errors from this calculation.

(i) On days when more than one measurement for the water quality parameter is collected at the sampling location, the daily value shall be the average of all results collected during the day, regardless of whether they are collected through continuous monitoring, grab sampling, or a combination of both.

(ii) On days when only one measurement for the water quality parameter is collected at the sampling location, the daily value shall be the result of that measurement.

(iii) On days when no measurement is collected for the water quality parameter at the sampling location, the daily value shall be the daily value calculated on the most recent day on which the water quality parameter was measured at the sample site.

(H) Modification of department treatment decisions. Upon [its] the department's own initiative or in response to a request by a [water] system or other interested party, the department may modify [its] the department's determination of the optimal corrosion control treatment under [subparagraph (D) of this subdivision] subsection (j)(8)(D) of this section or optimal water quality control parameters under [subparagraph (F) of this subdivision] subsection (j)(8)(F) of this

section. [A request for modification by] If a system or other interested party seeks a modification of the department's approved optimal corrosion control treatment or optimal water quality control parameters, the system or other interested party shall [be in writing, explain why the modification is appropriate, and provide supporting documentation] submit an application to the department requesting a modification the department's determination. Such application shall include an explanation as to why the modification is appropriate and documentation supporting the proposed modification , and shall be submitted in accordance with subsection (t) of this section. The department may modify [its] the department's prior determination [where it] if the department concludes that such change is necessary to ensure that the system continues to optimize corrosion control treatment. A revised determination shall be made in writing, set forth the new treatment requirements, explain the basis for the department's decision, and provide an implementation schedule for completing the treatment modifications.

(9) Source water treatment requirements. Systems shall complete the applicable source water monitoring and treatment requirements under subsections (e)(8), (e)(10) and (j)(9)(B) of this section by the following deadlines. Unless otherwise indicated, the provisions of subsection (j)(9) of this section apply to CWSs and NTNCs.

(A) Deadlines for completing source water treatment steps.

(i) Step 1: A system exceeding the lead or copper action level shall complete lead and copper source water monitoring in accordance with subsection (e)(10)(B) of this section [19-13-B102(e)(10)(B) of the Regulations of Connecticut State Agencies] and make a treatment proposal to the department in accordance with [subparagraph (9)(B)(i) of this] subsection [within six (6) months] (j)(9)(B)(i) of this section no later than 180 calendar days after [exceeding] the end of the monitoring period during which the lead or copper action level was exceeded.

(ii) Step 2: The department shall make a determination regarding source water treatment in accordance with [subparagraph (9)(B)(ii)] subsection (j)(9)(B)(ii) of this [subsection] section within [six (6)] 6 months after submission of monitoring results in [(i)] Step 1 in subsection (j)(9)(A)(i) of this section.

(iii) Step 3: If the department requires installation of source water treatment, the system shall install the treatment in accordance with [subparagraph (9)(B)(iii) of this] subsection (j)(9)(B)(iii) of this section within [twenty four (24)] 24 months after completion of [(ii)] Step 2 in subsection (j)(9)(A)(ii) of this section.

(iv) Step 4: The system shall complete follow-up tap water monitoring in accordance with subsection (e)(8)(D)(ii) of this section [19-13-B102(e)(8)(E) of the Regulations of Connecticut State Agencies] and source water monitoring in accordance with subsection (e)(10)(C) of this section [19-13-B102(e)(10)(C) of the Regulations of Connecticut State Agencies] within [thirty six (36)] 36 months after completion of [(ii)] Step 2 in subsection (j)(9)(A)(ii) of this section.

(v) Step 5: The department shall review the system's installation and operation of source water treatment and specify maximum permissible source water levels in accordance with [subparagraph(9)(B)(iv)of this] subsection (j)(9)(B)(iv) of this section within [six (6)] 6

months after completion of [(iv)] Step 4 in subsection (j)(9)(A)(iv) of this section.

(vi) Step 6: The system shall operate in compliance with the department-specified maximum permissible lead and copper source water levels in accordance with [subparagraph (9)(B)(v)of this] subsection (j)(9)(B)(v) of this section and continue source water monitoring in accordance with subsection (e)(10)(D) of this section [19-13-B102(e)(10)(D) of the Regulations of Connecticut State Agencies].

(B) Description of source water treatment requirements.

(i) [Water system] System treatment proposal. Any [water] system that exceeds the lead or copper action level shall propose in writing to the department the installation and operation of one [(1)] of the source water treatments listed in [subparagraph (B) (ii) of this subdivision] subsection (j)(9)(B)(ii) of this section. A [water] system may propose that no treatment be installed based upon a demonstration that source water treatment is not necessary to minimize lead and copper levels at users' taps.

(ii) Department determination regarding source water treatment. The department shall complete an evaluation of the results of all source water samples submitted by the [water] system to determine whether source water treatment is necessary to minimize lead or copper levels in water delivered to users' taps. If the department determines that treatment is needed, the system shall submit an application to the department requesting approval of a proposed source water treatment. Such application shall include the reason or reasons why the system is proposing the source water treatment in the application and shall be submitted in accordance with subsection (t) of this section. The department shall review the application and either approve or reject with written reasons the installation and operation of the source water treatment proposed by the system in the application submitted to the department. If rejected, the [water] system shall [propose, in consideration for approval,] submit to the department an application requesting approval of the installation and operation of another source water treatment from among the following: ion exchange, reverse osmosis, lime softening or coagulation/filtration; or the system shall revise the original proposal based upon the department's recommendations and resubmit this to the department for review in consideration for approval. Such application shall be submitted in accordance with subsection (t) of this section. If the department requests additional information to aid in [its] the department's review, the [water] system shall provide the information by the date specified by the department in [its] the department's request. The department shall notify the [water] system in writing of [its] the department's determination and set forth the basis for [its] the department's decision.

(iii) Installation of source water treatment. Each [water] system shall properly install and operate the source water treatment approved by the department under [subparagraph (B) (ii) of this subdivision] subsection (j)(9)(B)(ii) of this section.

(iv) Department review of source water treatment and specification of maximum permissible source water levels. The department shall review the source water samples taken by the system both before and after the system installs source water treatment, and determine whether the [water] system has properly installed and operated the source water treatment approved by the department. Based upon [its] the department's review, the department shall

designate the maximum permissible lead and copper concentrations for finished water entering the distribution system. Such levels shall reflect the contaminant removal capability of the treatment properly operated and maintained. The department shall notify the [water] system in writing and explain the basis for [its] the department's decision.

(v) Continued operation and maintenance. Each [water] system shall maintain lead and copper levels below the maximum permissible concentrations designated by the department at each sampling point monitored in accordance with subsection (e)(10) of this section. The system is out of compliance with [this subparagraph] subsection (j)(9)(B)(v) of this section if the level of lead or copper at any sampling point is greater than the maximum permissible concentration designated by the department.

(vi) Modification of department treatment decisions. Upon [its] the department's own initiative or in response to a request by a [water] system or other interested party, the department may modify [its] the department's determination of the source water treatment under [subparagraph (B) (ii) of this subdivision] subsection (j)(9)(B)(ii) of this section, or maximum permissible lead and copper concentrations for finished water entering the distribution system under [subparagraph (B) (iv) of this subdivision] subsection (j)(9)(B)(iv) of this section. [A request for modification by] If a system or other interested party seeks a modification of the department's approved optimal corrosion control treatment or optimal water quality control parameters, the system or other interested party shall [be in writing, explain why the modification is appropriate, and provide supporting documentation] submit an application to the department requesting that the department modify the department's determination. Such application shall include an explanation as to why the modification is appropriate and documentation supporting the proposed modification, and shall be submitted in accordance with subsection (t) of this section. The department may modify [its] the department's determination if [it] the department concludes that such change is necessary to ensure that the system continues to minimize lead and copper concentrations in source water. A revised determination shall be made in writing, set forth the new treatment requirements, explain the basis for the department's decision, and provide an implementation schedule for completing the treatment modifications.

[(j)] (10) Lead service line replacement requirements. Unless otherwise indicated, the provisions of subsection (j)(10) of this section apply to CWSs and NTNCs.

(A) [Water systems] Systems that fail to meet the lead action level in tap water samples taken pursuant to subsection (e)(8)(D)(ii) of this section [19-13-B102(e)(8)(E) of the Regulations of Connecticut State Agencies], after installing corrosion control or source water treatment, whichever sampling occurs later, shall replace lead service lines in accordance with the requirements of [this subdivision] subsection (j)(10) of this section. If a [water] system is in violation of [subdivisions (7) or (9) of this subsection] subsections (j)(7) or (9) of this section for failure to install source water or corrosion control treatment, the department may require the [water] system to commence lead service line replacement under [this subdivision] subsection (j)(10) of this section after the date by which the [water] system was required to conduct monitoring under subsection (e)(8)(D)(ii) of this section [19-13-B102(e)(8)(E) of the Regulations of Connecticut State Agencies] has passed.

(B)(i) A [water] system shall annually replace at least [seven] 7 percent [(7%)] of the initial number of lead service lines in [its] the system's distribution system. The initial number of lead service lines is the number of lead lines in place at the time the replacement program begins. The [water] system shall identify the initial number of lead service lines in [its] the system's distribution system, including an identification of the portion(s) owned by the system, based on a materials evaluation, including the evaluation required under subsection (e)(8)(A) of this section [19-13-B102(e)(8)(A) of the Regulations of Connecticut State Agencies] and relevant legal [documents such as,] authorities, including but not limited to, contractual agreements, local land records and local land ordinances, regarding the portion owned by the system. The first year of lead service line replacement shall begin on the [date the action level has exceeded in tap sampling referenced in subparagraph (A) of this subdivision] first day following the end of the monitoring period in which the action level was exceeded under subsection (j)(10)(A) of this section. If monitoring is required annually or less frequently, the end of the monitoring period is September 30 of the calendar year in which the sampling occurs. If the department has approved an alternate monitoring period under subsection (e)(8)(D)(iv)(IV)(1) of this section, then the end of the monitoring period will be the last day of that period.

(ii) Any system resuming a lead service line replacement program after the cessation of the system's lead service line replacement program under subsection (j)(10)(F) of this section shall update the system's inventory of lead service lines to include those sites that were previously determined not to require replacement through the sampling provision under subsection (j)(10)(C) of this section. The system will then divide the updated number of remaining lead service lines by the number of remaining years in the program to determine the number of lines that shall be replaced per year (7 percent lead service line replacement is based on a 15-year replacement program, e.g., systems resuming lead service line replacement after previously conducting 2 years of replacement would divide the updated inventory by 13). For those systems that have completed a 15-year lead service line replacement program, the department may, in the department's discretion, determine a schedule for replacing or retesting lines that were previously tested out under the replacement program when the system re-exceeds the action level.

(C) A [water] system is not required to replace an individual lead service line if the lead concentration in all service line samples from that line, taken pursuant to subsection (e)(8)(B)(iii) of this section [19-13-B102(e)(8)(B)(iii) of the Regulations of Connecticut State Agencies], is less than or equal to 0.015 mg/l.

(D) A [water] system shall replace that portion of the lead service line that [it] the system owns. In cases where the system does not own the entire lead service line, the system shall notify the owner of the line, or the owner's authorized agent, that the system will replace the portion of the service line that [it] the system owns and shall offer to replace the owner's portion of the line. A system is not required to bear the cost of replacing the privately-owned portion of the line, nor is [it] the system required to replace the privately-owned portion where the owner chooses not to pay the cost of replacing the privately-owned portion of the line, or where replacing the privately-owned portion would be precluded by state, local or common law. A [water] system that does not replace the entire length of the service line also shall complete the following tasks:

(i) [at] At least [forty-five (45)] 45 calendar days prior to commencing with the partial replacement of a lead service line, the [water] system shall provide notice to the resident(s) of

all buildings served by the line, explaining that [they] the residents may experience a temporary increase of lead levels in [their] the resident's drinking water, along with guidance on measures consumers can take to minimize [their] consumers exposure to lead. The department may allow the [water] system to provide notice less than [forty-five (45)] 45 calendar days prior to commencing partial lead service line replacement where such replacement is in conjunction with emergency repairs. In addition, the [water] system shall inform the resident(s) served by the line that the system will, at the system's expense, collect a sample, from each partially-replaced lead service line that is representative of the water in the service line for[,] analysis of lead content, as prescribed under subsection (e)(8)(B)(iii) of this section [19-13- B102(e)(8)(B)(iii) of the Regulations of Connecticut State Agencies], no later than [seventy-two (72)] 72 hours after the completion of the partial replacement of the service line. The system shall collect the sample and report the results of the analysis to the owner and the resident(s) served by the line no later than [three (3)] 3 business days after receiving the results. Mailed notices post-marked no later than [three (3)] 3 business days after receiving the results shall be considered "on time."

(ii) [the water] The system shall provide, by mail or by other methods approved by the department, the information required by subsection (j)(10)(D)(i) of this section [19-13-B102(j)(10)(D)(1) of Regulations of Connecticut State Agencies,] to the residents of individual dwellings. In instances where multi-family dwellings are served by the line, the [water] system shall have the option to post the information at a conspicuous location.

(E) The department shall require a system to replace lead service lines on a shorter schedule than that required by [this subdivision] subsection (j)(10) of this section, taking into account the number of lead service lines in the [water] system, where such a shorter replacement schedule is feasible. The department shall make this determination in writing and notify the system of [its] the department's finding within [six (6)] 6 months after the system is triggered into lead service line replacement based on monitoring referenced in [subparagraph (A) of this subdivision] subsection (j)(10)(A) of this section.

(F) Any system may cease replacing lead service lines whenever first-draw samples collected pursuant to subsection (e)(8)(B)(ii) of this section [19-13-B102(e)(8)(F) of the Regulations of Connecticut State Agencies] meet the lead action level during each of [two (2)] 2 consecutive monitoring periods and the system submits the results in writing to the department. If first-draw tap water samples in any such [water] system thereafter exceed the lead action level, the system shall recommence replacing lead service lines[,] pursuant to [subparagraph (B) in this subdivision] subsection (j)(10)(B)(ii) of this section.

(G) To demonstrate compliance with [subparagraphs (A) through (D) of this subdivision] subsections (j)(10)(A) through (D) of this section, a system shall report to the department the information specified in subsection (h)(5)(E) of this section [19-13-B102(h)(5)(E) of the Regulations of Connecticut State Agencies].

(11) Treatment technique for control of disinfection byproduct precursors. For systems using conventional filtration treatment that are required to comply with [subdivision (2) of this] subsection (j)(2) of this section, enhanced coagulation or enhanced softening are identified as treatment techniques to control the level of disinfection byproduct precursors in drinking water treatment and distribution systems.

(A) Applicability. Systems using conventional filtration treatment that are required to comply with [subdivision (2) of this] subsection (j)(2) of this section shall operate with enhanced coagulation or enhanced softening to achieve the TOC percent removal levels specified in [subparagraph (C) of this subdivision] subsection (j)(11)(C) of this section, unless the system meets at least one of the alternative compliance criteria listed in [this subparagraph] subsection (j)(11)(A) of this section. Systems may use the alternative compliance criteria listed in [subclauses (i) through (vi) of this subparagraph] subsections (j)(11)(A)(i) through (vi) of this section to comply with [this subdivision] subsection (j)(11) of this section and in lieu of complying with [subparagraph (B) of this subdivision] subsection (j)(11)(B) of this section. In all cases [Systems] systems shall still comply with monitoring requirements specified in [section 19-13- B102(e)(11)(E) of the Regulations of Connecticut State Agencies] subsection (e)(11)(A)(iii)(IV) of this section.

(i) The system's source or treated water TOC level is less than 2.0 [MG/L] mg/l, calculated quarterly as [a running annual average] a RAA.

(ii) The system's source water TOC level is less than 4.0 [MG/L] mg/l, calculated quarterly as [a running annual average] a RAA; the source water alkalinity is greater than 60 [MG/L] mg/l (as $CaCO_3$), calculated quarterly as [a running annual average] a RAA; and [either] the TTHM and HAA5 [running annual averages] RAAs are no greater than 0.040 [MG/L] mg/l and 0.030 [MG/L] mg/l, respectively [or prior to the effective date for compliance in section 19-13-B102(e)(11)(A) of the Regulations of Connecticut State Agencies, the system has made a clear and irrevocable financial commitment to use technologies that will limit the levels of TTHM and HAA5 to no more than 0.040 MG/L and 0.030 MG/L, respectively, as described in 40 CFR 141.135(a)(2)(iii)].

(iii) The TTHM and HAA5 [running annual averages] RAAs are no greater than 0.040 [MG/L] mg/l and 0.030 [MG/L] mg/l, respectively, and the system uses only chlorine for primary disinfection and maintenance of a residual in the distribution system.

(iv) The system's source water (prior to any treatment) or finished water SUVA is less than or equal to 2.0 [L/MG-M] l/mg-m, measured monthly and calculated quarterly as [a running annual average] a RAA.

(v) [the] The treated water alkalinity of a system with an enhanced softening is less than 60 [MG/L] mg/l (as $CaCO_3$), measured monthly and calculated quarterly as [a running annual average] a RAA.

(vi) The treated water of a system with an enhanced softening demonstrates a removal of at least 10 [MG/L] mg/l of magnesium hardness (as $CaCO_3$), measured monthly and calculated quarterly as [a running annual average] a RAA.

(B) Enhanced coagulation and enhanced softening performance requirements. Systems shall achieve the percent reduction of TOC specified in [subclause (i) of this subparagraph] subsection (j)(11)(B)(i) of this section between the source water and the combined filter effluent, unless the [state] department approves in writing a system's request for alternate minimum TOC removal (Step 2) requirements under [subclause (ii) of this subparagraph] subsection (j)(11)(B)(ii) of this section.

(i) Required Step 1 TOC reductions, as indicated in the following [table] Table 11-A1 of subsection (j)(11)(B)(i) of this section, are based upon specified source water parameters. Systems practicing softening are required to meet the Step 1 TOC reductions in the far-right column (Source water alkalinity >120 [MG/L] mg/l) for the specified source water TOC:

[Step 1 required removal of TOC by enhanced coagulation and enhanced softening]

TABLE 11-A1. STEP 1 REQUIRED REMOVAL OF TOC BY ENHANCED COAGULATION AND ENHANCED SOFTENING

	Source Water Alkalinity, mg/l as $CaCO_3$		
Source Water TOC, mg/l	0-60	>60-120	>120[1]
>2.0-4.0	35.0%	25.0%	15.0%
>4.0-8.0	45.0%	35.0%	25.0%
>8.0	50.0%	40.0%	30.0%

[1] Systems practicing softening shall meet the TOC removal requirements in this column.

(ii) A system that cannot achieve the Step 1 TOC [removals] reductions required by [subclause (i) of this subparagraph] subsection (j)(11)(B)(i) of this section due to water quality parameters or operational constraints shall apply to the department, no later than [three (3)] 3 months after failure to achieve the TOC [removals] reductions required by [subclause (i) of this subparagraph] subsection (j)(11)(B)(i) of this section, for approval of alternative minimum TOC (Step 2) removal requirements submitted by the system. If the department approves the alternative minimum TOC removal (Step 2) requirements, the department may make those requirements retroactive for the purposes of determining compliance. Until the department approves the alternate minimum TOC removal (Step 2) requirements, the system shall meet the Step 1 TOC [removals] reductions contained in [subclause (i) of this subparagraph] subsection (j)(11)(B)(i) of this section. Alternate minimum TOC removal (Step 2) requirements shall be determined in accordance with 40 CFR 141.135(b)(4), as amended from time to time.

(C) Compliance calculations. Systems using conventional filtration treatment that are required to comply with [subdivision (2) of this subsection] subsection (j)(2) of this section, other than those identified in [subparagraph (A) of this subdivision] subsection (j)(11)(A) of this section, shall comply with requirements contained in [subparagraph (B) of this subdivision] subsection (j)(11)(B) of this section. Systems shall calculate compliance quarterly, beginning after the system has collected [twelve (12)] 12 months of data, by determining an annual average using the following method:

(i) Determine actual monthly TOC percent [removals] reductions, equal to: (1- (treated water TOC/source water TOC)) x 100;

(ii) Determine the required monthly TOC percent [removals] reductions, from either [the table in subparagraph (B)(i) of this subdivision] Table 11-A1 of subsection (j)(11)(B)(i) of this section or from [subparagraph (B)(ii) of this subdivision] subsection (j)(11)(B)(ii) of this section;

(iii)Divide the value in [(i)] subsection (j)(11)(C)(i) of this section by the value in [(ii)] subsection

(j)(11)(C)(ii) of this section;

(iv) Add together the results of [(iii)] subsection (j)(11)(B)(iii) of this section for the last [twelve (12)] 12 months and divide by 12; and

(v) If the value calculated in [(iv)] subsection (j)(11)(B)(iv) of this section is less than 1.00, the system is not in compliance with the TOC percent [removal] reduction requirements.

(D) Systems may use the provisions in [subclauses (i) through (v) of this subparagraph] subsection (j)(11)(D)(i) through (v) of this section in lieu of the calculations in [subparagraph (C) of this subdivision] subsection (j)(11)(C) of this section to determine compliance with TOC percent [removal] reduction requirements.

(i) In any month that the system's treated or source water TOC level is less than 2.0 [MG/L] mg/l, the system may assign a monthly value of 1.0 (in lieu of the value calculated in [subparagraph (C)(iii) of this subdivision] subsection (j)(11)(C)(iii) of this section) when calculating compliance under the provisions of [subparagraph (C) of this subdivision] subsection (j)(11)(C) of this section.

(ii) In any month that a system practicing softening removes at least 10 [MG/L] mg/l of magnesium hardness (as $CaCO_3$), the system may assign a monthly value of 1.0 (in lieu of the value calculated in [subparagraph (C)(iii) of this subdivision] subsection (j)(11)(C)(iii) of this section) when calculating compliance under the provisions of [subparagraph (C) of this subdivision] subsection (j)(11)(C) of this section.

(iii) In any month that the system's source water SUVA, prior to any treatment, is less than or equal to 2.0 [L/MG-M] l/mg-m, the system may assign a monthly value of 1.0 (in lieu of the value calculated in [subparagraph (C)(iii) of this subdivision] subsection (j)(11)(C)(iii) of this section) when calculating compliance under the provisions of [subparagraph (C) of this subdivision] subsection (j)(11)(C) of this section.

(iv) In any month that the system's finished water SUVA is less than or equal to 2.0 [L/MG-M] l/mg-m, the system may assign a monthly value of 1.0 (in lieu of the value calculated in [subparagraph (c)(iii) of this subdivision] subsection (j)(11)(C)(iii) of this section) when calculating compliance under the provisions of [subparagraph (C) of this subdivision] subsection (j)(11)(C) of this section.

(v) In any month that a system practicing enhanced softening lowers alkalinity below 60 [MG/L] mg/l (as $CaCO_3$), the system may assign a monthly value of 1.0 (in lieu of the value calculated in [subparagraph (C)(iii) of this subdivision] subsection (j)(11)(C)(iii) of this section) when calculating compliance under the provisions of [subparagraph (C) of this subdivision] subsection (j)(11)(C) of this section.

(vi) Systems may also comply with the requirements of subsection (j)(11)(C) of this section by meeting the criteria in [subparagraph (A) of this subdivision] subsection (j)(11)(A) of this section.

Sec. 25. Section 19-13-B102(j) of the Regulations of Connecticut State Agencies is amended by adding subdivision (12) as follows:

(NEW) (12) Treatment technique requirements for the enhanced treatment for Cryptosporidium. The requirements of subsection (j)(12) of this section apply to all systems supplied by a surface water source and systems supplied by a GWUDI source.

(A) Bin classification for systems.

(i) Systems that completed the initial round of source water monitoring required under 40 CFR 141.701(a), as amended from time to time, shall calculate an initial Cryptosporidium bin concentration for each plant for which monitoring was required. Calculation of the bin concentration shall use the Cryptosporidium results reported under 40 CFR 141.701(a), as amended from time to time, and shall follow the procedures in subsection (j)(12)(A)(ii)(I) through (V) of this section.

(ii) (I) For systems that collect a total of at least 48 samples, the bin concentration is equal to the arithmetic mean of all sample concentrations.

(II) For systems that collect a total of at least 24 samples, but not more than 47 samples, the bin concentration is equal to the highest arithmetic mean of all sample concentrations in any 12 consecutive months during which Cryptosporidium samples were collected.

(III) For systems that serve fewer than 10,000 people and monitor for Cryptosporidium for only 1 year (i.e., collect 24 samples in 12 months), the bin concentration is equal to the arithmetic mean of all sample concentrations.

(IV) For systems with plants operating only part of the year that monitor fewer than 12 months per year under subsection (e)(7)(T)(ii)(IV) of this section, the bin concentration is equal to the highest arithmetic mean of all sample concentrations during any year of Cryptosporidium monitoring. For purposes of subsection (j)(12) of this section, a plant operates for only part of the year if the plant operates for less than 12 months out of a year.

(V) If the monthly Cryptosporidium sampling frequency varies, systems shall first calculate a monthly average for each month of monitoring. Systems shall then use these monthly average concentrations, rather than individual sample concentrations, in the applicable calculation for bin classification in subsections (j)(12)(A)(ii)(I) through (IV) of this section.

(iii) Systems shall determine the system's initial bin classification from Table 12-A1 in subsection (j)(12)(A)(iii) of this section and using the Cryptosporidium bin concentration calculated under subsection (j)(12)(A)(i) through (ii) of this section.

TABLE 12-A1. BIN CLASSIFICATION FOR SYSTEMS

FOR SYSTEMS THAT ARE:	WITH A CRYPTOSPORIDIUM BIN CONCENTRATION OF...[1]	THE BIN CLASSIFICATION IS...
Required to monitor for Cryptosporidium under subsection (e)(7)(T)(ii) of this section	Less than 0.075 oocysts/L	Bin 1
	Greater than or equal to 0.075 oocysts/L and less than 1.0 oocysts/L	Bin 2
	Greater than or equal to 1.0 oocysts/L and less than 3.0 oocysts/L	Bin 3
	Greater than or equal to 3.0 oocysts/L	Bin 4
Serving fewer than 10,000 people and not required to monitor for Cryptosporidium under subsection (e)(7)(T)(ii)(II) of this section.	N/A	Bin 1

[1] Based on calculations in subsection (j)(12)(A)(i) or (iv) of this section, as applicable.

(iv) Following completion of the second round of source water monitoring required under subsection (e)(7)(T)(ii)(I) of this section, systems shall recalculate the system's Cryptosporidium bin concentration using the Cryptosporidium results reported under subsection (e)(7)(T)(ii)(I) of this section and following the procedures in subsection (j)(12)(A)(ii)(I) through (IV) of this section. Systems shall then redetermine the system's bin classification using this bin concentration and Table 12-A1 in subsection (j)(12)(A)(iii) of this section.

(v) (I) Systems shall submit to the department an application in accordance with subsection (t) of this section requesting approval of the system's bin classification under subsection (j)(12)(A)(iv) of this section. Such application shall be submitted to the department for approval no later than 6 months after the system is required to complete the second round of source water monitoring based on the schedule in subsection (e)(7)(T)(ii)(II) of this section.

(II) The bin classification application submitted to the department under subsections (j)(12)(A)(v)(I) of this section shall include a report containing a summary of source water monitoring data and the calculation procedure used to determine bin classification.

(vi) Failure to comply with the conditions of subsection (j)(12)(A)(v) of this section is a violation of the treatment technique requirement.

(B) Additional Cryptosporidium treatment requirements for systems.

(i) Systems shall provide the level of additional treatment for Cryptosporidium specified in Table 12-B1 in subsection (j)(12)(B)(i) of this section based on the system's bin classification as

determined under subsection (j)(12)(A) of this section and according to the schedule in subsection (j)(12)(C) of this section.

TABLE 12-B1. ADDITIONAL TREATMENT REQUIREMENTS FOR SYSTEMS

If the system bin classification is...	And the system uses the following filtration treatment in full compliance with subsections (e)(7)(H), (e)(7)(R), (e)(7)(S), (h)(6), and (j)(2) through (j)(4) of this section (as applicable), then the additional Cryptosporidium treatment requirements are . . .			
	Conventional filtration treatment (including softening)	Direct filtration	Slow sand or diatomaceous earth filtration	Alternative filtration technologies
Bin 1	No additional treatment.	No additional treatment.	No additional treatment.	No additional treatment.
Bin 2	1 log treatment	1.5 log treatment	1 log treatment	The total Cryptosporidium removal and inactivation is at least 4.0 log.
Bin 3	2 log treatment	2.5 log treatment	2 log treatment	The total Cryptosporidium removal and inactivation is at least 5.0 log.
Bin 4	2.5 log treatment	3 log treatment	2.5 log treatment	The total Cryptosporidium removal and inactivation is at least 5.5 log.

(ii) Systems shall use one or more of the treatment and management options listed in subsection (j)(13)(A) of subsection, termed the microbial toolbox, to comply with the additional Cryptosporidium treatment required by subsection (j)(12)(B)(i) of this section.

(iii) Systems classified in Bin 3 and Bin 4 shall achieve at least 1 log of the additional Cryptosporidium treatment required under subsection (j)(12)(B)(i) of this section using either one or a combination of the following: bag filters, bank filtration, cartridge filters, chlorine dioxide, membranes, ozone, or UV, as described in subsections (j)(13)(B) through (F) of this section.

(iv) Failure by a system in any month to achieve treatment credit by meeting criteria in subsections (j)(13)(B) through (F) of this section for microbial toolbox options that is at least equal to the level of treatment required in subsection (j)(12)(B)(i) of this section is a violation of the treatment technique requirement.

(v) If the department determines, in the department's discretion, during a sanitary survey or an equivalent source water assessment that after a system completed the monitoring conducted under 40 CFR 141.701(a), as amended from time to time, and subsection (e)(7)(T)(ii)(I) of this section, significant changes occurred in the system's watershed that could lead to increased contamination of the source water by Cryptosporidium, the system shall take actions specified by the department to address the contamination. These actions may include additional source water monitoring or implementing microbial toolbox options, or both, in subsection (j)(13)(A) of this section.

(C) Schedule for compliance with Cryptosporidium treatment requirements.

(i) Following initial bin classification under subsection (j)(12)(A)(iii) of this section, systems that serve ≥ 50,000 people shall provide the level of treatment for Cryptosporidium required under subsection (j)(12)(B) of this section. Systems that serve < 50,000 shall provide the level of treatment for Cryptosporidium required under subsection (j)(12)(B) of this section according to the schedule in Table 12-C1 in subsection (j)(12)(C)(ii) of this section based on the number of people served by the system.

(ii) Cryptosporidium treatment compliance dates.

(I) Systems that serve ≥ 50,000 people shall comply with the Cryptosporidium treatment requirements, unless the department approved up to an additional 24 months for compliance because the system is making capital improvements to comply with the Cryptosporidium treatment requirements, in which case the system shall comply with the Cryptosporidium treatment requirements by the department-approved compliance date.

(II) Table 12-C1 of subsection (j)(12)(C)(ii) of this section provides the treatment compliance dates for systems that serve < 50,000 people based on the number of people served by the system.

TABLE 12-C1. CRYPTOSPORIDIUM TREATMENT COMPLIANCE DATES

SYSTEMS THAT SERVE ...	SHALL COMPLY WITH CRYPTOSPORIDIUM TREATMENT REQUIREMENTS NO LATER THAN[1] ...
(1) From 10,000 to 49,999 people	October 1, 2013
(2) Fewer than 10,000 people	October 1, 2014

[1] A system may submit an application to the department requesting approval of up to an additional 2 years for complying with the Cryptosporidium treatment requirements if the system is making capital improvements in order to comply with such requirements. Such application shall include the reason or reasons for requesting such additional time, including the capital improvements the system is making and the schedule for completion of such improvements, and shall be submitted in accordance with subsection (t) of this section.

(iii) If the bin classification for a system changes following the second round of source water monitoring, as determined under subsection (j)(12)(A)(iv) of this section, the system shall provide the level of treatment for Cryptosporidium required under subsection (j)(12)(B) of this section on a schedule approved by the department. The system shall submit an application to the department requesting approval of a schedule on which the system shall provide the level of treatment for Cryptosporidium required under subsection (j)(12)(B) of this section. Such application shall be submitted in accordance with subsection (t) of this section.

Sec. 26. Section 19-13-B102(j) of the Regulations of Connecticut State Agencies is amended by adding subdivision (13) as follows:

(NEW) (13) Requirements for microbial toolbox components. The requirements of subsection (j)(13) of this section apply to all systems supplied by a surface water source and systems supplied by a GWUDI source.

(A) Microbial toolbox options for meeting Cryptosporidium treatment requirements. Systems may submit an application in accordance with subsection (t) of this section to the department requesting approval to receive the treatment credits listed in Table 13-A1 of subsection (j)(13)(A)(i) of this section. Such application shall include documentation demonstrating that the system meets the conditions for microbial toolbox options described in subsections (j)(13)(B) through (F) of this section. The department may approve the system's receipt of such credits if the system meets the conditions for microbial toolbox options in subsections (j)(13)(B) through (F) of this section. If the department approves the system's receipt of the treatment credits, the system may apply such credits to meet the treatment requirements in subsection (j)(12)(B) of this section.

TABLE 13-A1. MICROBIAL TOOLBOX SUMMARY TABLE: OPTIONS, TREATMENT CREDITS, AND CRITERIA

TOOLBOX OPTION	CRYPTOSPORIDIUM TREATMENT CREDIT WITH DESIGN AND IMPLEMENTATION CRITERIA
Source Protection and Management Toolbox Options	
(i) Watershed control program	0.5 log credit for department-approved program comprising required elements, annual program status report to department, and regular watershed survey. Specific criteria are in subsection (j)(13)(B)(i) of this section.
(ii) Alternative source/intake management	No prescribed credit. Systems may conduct simultaneous monitoring for treatment bin classification at alternative intake locations or under alternative intake management strategies. Specific criteria are in subsection (j)(13)(B)(ii) of this section.
Pre-Filtration Toolbox Options	
(iii) Presedimentation basin with coagulation	0.5 log credit during any month that presedimentation basins achieve a monthly mean reduction of 0.5 log or greater in turbidity or alternative department-approved performance criteria. To be eligible, basins shall be operated continuously with coagulant addition and all plant flow shall pass through basins. Specific criteria are in subsection (j)(13)(C)(i) of this section.
(iv) Two-stage lime softening	0.5 log credit for two-stage softening where chemical addition and hardness precipitation occur in both stages. All plant flow shall pass through both stages. Single-stage softening is credited as equivalent to conventional treatment. Specific criteria are in subsection (j)(13)(C)(ii) of this section.
(v) Bank filtration	0.5 log credit for 25-foot setback; 1.0 log credit for 50-foot setback; aquifer shall be unconsolidated sand containing at least [illegible] percent fines; average turbidity in wells shall be less than 1

	nephelolometric turbidity unit (NTU). Systems using wells followed by filtration when conducting source water monitoring shall sample the well to determine bin classification and are not eligible for additional credit. Specific criteria are in subsection (j)(13)(C)(iii) of this section.
Treatment Performance Toolbox Options	
(vi) Combined filter performance	0.5 log credit for combined filter effluent turbidity less than or equal to 0.15 NTU in at least 95 percent of measurements each month. Specific criteria are in subsection (j)(13)(D)(i) of this section.
(vii) Individual filter performance	0.5 log credit (in addition to 0.5 log combined filter performance credit) if individual filter effluent turbidity is less than or equal to 0.15 NTU in at least 95 percent of samples each month in each filter and is never greater than 0.3 NTU in 2 consecutive measurements in any filter. Specific criteria are in subsection (j)(13)(D)(ii) of this section.
Additional Filtration Toolbox Options	
(viii) Bag or cartridge filters (individual filters)	Up to 2 log credit based on the removal efficiency demonstrated during challenge testing with a 1.0 log factor of safety. Specific criteria are in subsection (j)(13)(E)(i) of this section.
(ix) Bag or cartridge filters (in series)	Up to 2.5 log credit based on the removal efficiency demonstrated during challenge testing with a 0.5 log factor of safety. Specific criteria are in subsection (j)(13)(E)(i) of this section.
(x) Membrane filtration	Log credit equivalent to removal efficiency demonstrated in challenge test for device if supported by direct integrity testing. Specific criteria are in subsection (j)(13)(E)(ii) of this section.
(xi) Second stage filtration	0.5 log credit for second separate granular media filtration stage if treatment train includes coagulation prior to first filter. Specific criteria are in subsection (j)(13)(E)(iii) of this section.
(xii) Slow sand filters	2.5 log credit as a secondary filtration step; 3.0 log credit as a primary filtration process. No prior chlorination for either option. Specific criteria are in subsection (j)(13)(E)(iv) of this section.
Inactivation Toolbox Options	
(xiii) Chlorine dioxide	Log credit based on measured CT in relation to CT table. Specific criteria are in subsection (j)(13)(F)(ii) of this section.
(xiv) Ozone	Log credit based on measured CT in relation to CT table. Specific criteria are in subsection (j)(13)(F)(ii) of this section.
(xv) UV	Log credit based on validated UV dose in relation to UV dose table; reactor validation testing required to establish UV dose and associated operation conditions. Specific criteria are in subsection (j)(13)(F)(iii) of this section.

(B) Source protection and management toolbox options for meeting Cryptosporidium treatment requirements.

(i) Watershed control program. Systems that provided notification under 40 CFR 171.716(a)(1) may submit an application to the department requesting approval to receive a 0.5 log

Cryptosporidium treatment credit for implementing a watershed control program. Such application shall include documentation demonstrating that the system's watershed control program meets the requirements of subsection (j)(13)(B) of this section, and shall be submitted in accordance with subsection (t) of this section.

(I) Systems serving fewer than 10,000 people shall submit to the department with the system's application a proposed watershed control plan no later than 1 year before the applicable treatment compliance date in subsection (j)(12)(C) of this section. The system shall not receive the watershed control program treatment credit unless the department has approved the system's application requesting approval to receive a 0.5 log Cryptosporidium treatment credit for implementing a watershed control program. The system's watershed control plan shall include the following elements in subsection (j)(13)(B)(i)(I)(1) through (4) of this section:

(1) Identification of an "area of influence" outside of which the likelihood of Cryptosporidium or fecal contamination affecting the treatment plant intake is not significant. This is the area to be evaluated in future watershed surveys under subsection (j)(13)(B)(i)(III)(2) of this section.

(2) Identification of both potential and actual sources of Cryptosporidium contamination and an assessment of the relative impact of these sources on the system's source water quality.

(3) An analysis of the effectiveness and feasibility of control measures that could reduce Cryptosporidium loading from sources of contamination to the system's source water.

(4) A statement of goals and specific actions the system will undertake to reduce source water Cryptosporidium levels. The plan shall explain how the actions are expected to contribute to specific goals, identify watershed partners and their roles, identify resource requirements and commitments, and include a schedule for plan implementation with deadlines for completing specific actions identified in the plan.

(II) Systems with watershed control programs that were in place before January 5, 2006 are eligible to apply to the department for approval to receive the 0.5 log Cryptosporidium treatment credit for implementing a watershed control program. To obtain approval from the department to receive such credit, the system shall submit to the department an application requesting approval of the system's pre-January 5, 2006 watershed control program. Such application shall include documentation demonstrating that such pre-January 5, 2006 watershed control plan meets the criteria in subsection (j)(13)(B)(i)(I) of this section, and shall specify ongoing and future actions that will reduce source water Cryptosporidium levels. Such application shall be submitted in accordance with subsection (t) of this section.

(III) Systems shall complete the actions in subsection (j)(13)(B)(i)(III)(1) through (3), inclusive, to maintain the 0.5 log credit:

(1) Submit annually to the department the system's watershed control program status report for department review and approval in accordance with subsection (t) of this

section. The annual watershed control program status report shall describe the system's implementation of the department-approved watershed control plan and assess the adequacy of the plan to meet the plan's goals. The system's annual watershed control program status report shall also explain how the system is addressing any shortcomings in the system's implementation of the department-approved watershed control plan, including those shortcomings previously identified by the department or as the result of the watershed survey conducted under subsection (j)(13)(B)(i)(III)(2) of this section. In addition, the system's annual watershed control program status report shall describe any significant changes that have occurred in the watershed since the last watershed sanitary survey. If a system determines during implementation of the system's department-approved watershed control plan that making a significant change to the system's watershed control program is necessary, the system shall submit an application to the department requesting approval to make such changes prior to making any changes. If any change is likely to reduce the level of source water protection, the system shall also list in the system's application the actions the system will take to mitigate this effect.

(2) Undergo a watershed sanitary survey every year for CWSs and non-community water systems. In conducting such survey, the system shall determine whether the system is in compliance with the requirements in section 19-13-B32 of the Regulations of Connecticut State Agencies. The system shall submit the system's survey to the department for review and approval in accordance with subsection (t) of this section. The system shall include with the system's survey information, including but not limited to, whether the system is in compliance with the requirements in section 19-13-B32 of the Regulations of Connecticut State Agencies. The survey shall be conducted by a person whom the department has determined is competent to conduct such survey. The system shall obtain department approval of the person prior to the person conducting such survey. To obtain such approval, the system shall submit an application to the department requesting approval of the person conducting the system's survey in accordance with subsection (t) of this section. The system's survey conducted under subsection (j)(13)(B)(i)(III)(2) of this section may be used by the system to satisfy the survey or a portion of the survey required to be submitted to the department under subsection (b) of this section.

(A) In order to receive department approval, the watershed sanitary survey shall meet the following criteria: encompass the region identified in the department-approved watershed control plan as the area of influence; assess the implementation of actions to reduce source water Cryptosporidium levels; and identify any significant new potential and actual sources of Cryptosporidium.

(B) If, in reviewing the system's watershed sanitary survey, the department determines that significant changes may have occurred in the watershed since the previous watershed sanitary survey, the system shall undergo another watershed sanitary survey by a date the department requires, which may be earlier than the regular watershed sanitary survey date in subsection (j)(13)(B)(i)(III)(2) of this section.

(3) The system shall make the department-approved watershed control plan, annual status reports, and watershed sanitary survey reports available to the public upon request.

These documents shall be in a plain language style and include criteria by which to evaluate the success of the program in achieving plan goals. If a system other than a system owned by the state or a municipality, wants to withhold from the public portions of the department-approved annual status report, watershed control plan, or watershed sanitary survey reports based on water supply security considerations, the system shall submit an application to the department requesting approval to do so. If the system is owned or operated by the state or a municipality, the system may withhold all or portions of the department-approved annual status report, watershed control plan, or watershed sanitary survey reports as permitted under sections 1-200 through 1-241, inclusive, of the Connecticut General Statutes. Such application shall include the system's reason or reasons for requesting to withhold such portions and shall be submitted in accordance with subsection (t) of this section.

(IV) If the department determines that a system is not carrying out the approved watershed control plan, the department may withdraw the watershed control program treatment credit.

(ii) Alternative source/intake management.

(I) A system seeking to conduct source water monitoring that reflects a different intake location (either in the same source or for an alternate source) or a different procedure for the timing or level of withdrawal from the source (alternative source monitoring) shall submit an application to the department requesting approval to do so. Such application shall include the reason or reasons for requesting to conduct source water monitoring that reflects a different intake location or a different procedure for the timing or level of withdrawal from the source and shall be submitted in accordance with subsection (t) of this section. If the department approves the system's application, a system may determine the system's bin classification under subsection (j)(12)(A) of this section based on the alternative source monitoring results.

(II) If a system conducts alternative source monitoring approved by the department under subsection (j)(13)(B)(ii)(I) of this section, the system shall also monitor the system's current plant intake concurrently as described in subsection (e)(7)(T)(ii) of this section.

(III) To be approved by the department under subsection (j)(13)(B)(ii)(I) of this section, the alternative source monitoring shall meet the requirements for source monitoring to determine bin classification, as described subsections (e)(7)(T)(ii) through (e)(7)(T)(vi), inclusive, and (h)(9) of this section. Systems shall report the alternative source monitoring results in writing to the department, along with supporting information documenting the operating conditions under which the samples were collected.

(IV) If a system determines the system's bin classification under subsection (j)(12)(A) of this section using alternative source monitoring results that reflect a different intake location or a different procedure for managing the timing or level of withdrawal from the source that were approved by the department, the system shall relocate the intake or permanently adopt the withdrawal procedure, as applicable, no later than the applicable treatment compliance date in subsection (j)(12)(C) of this section.

(C) Pre-filtration treatment toolbox options.

(i) Presedimentation. A system that has a presedimentation basin may submit an application to the department requesting approval to receive a 0.5 log Cryptosporidium treatment credit for the presedimentation basin during any month the process meets the following criteria in subsection (j)(13)(C)(i)(I) through (III), inclusive, of this section. Such application shall include documentation demonstrating that the process meets the criteria in subsection (j)(13)(C)(i)(I) through (III), inclusive, of this section, and shall be submitted in accordance with subsection (t) of this section.

(I) The presedimentation basin shall be in continuous operation and shall treat the entire plant flow taken from a surface water or GWUDI source.

(II) The system shall continuously add a coagulant to the presedimentation basin.

(III) The presedimentation basin shall achieve the performance criteria in subsection (j)(13)(C)(i)(III)(1) or (2) of this section.

(1) Demonstrate at least 0.5 log mean reduction of influent turbidity. This reduction shall be determined using daily turbidity measurements in the presedimentation process influent and effluent and shall be calculated as follows: $\log_{10}$ (monthly mean of daily influent turbidity) - $\log_{10}$ (monthly mean of daily effluent turbidity).

(2) The presedimentation basin shall comply with department-approved performance criteria that demonstrate at least 0.5 log mean removal of micron-sized particulate material through the presedimentation process. In order for the performance criteria to be department-approved, the system shall submit an application to the department requesting approval of the performance criteria to demonstrate at least 0.5 log mean removal of micron-sized particulate material through the presedimentation process and receive department approval of such application. Such application shall be submitted in accordance with subsection (t) of this section.

(ii) Two-stage lime softening. A system that has a two-stage lime softening plant may submit an application to the department requesting approval to receive a 0.5 log Cryptosporidium treatment credit for the two-stage lime softening plant. Such application shall include documentation demonstrating that the chemical addition and hardness precipitation occur in 2 separate and sequential softening stages prior to filtration, and shall be submitted in accordance with subsection (t) of this section. Both softening stages shall treat the entire plant flow taken from a surface water or GWUDI source.

(iii)Bank filtration. A system that uses bank filtration that serves as pretreatment to a filtration plant may submit an application to the department requesting approval to receive a Cryptosporidium treatment credit for the bank filtration. Such application shall include documentation demonstrating that the system's bank filtration meets the following criteria, and shall be submitted in accordance with subsection (t) of this section. A system using bank filtration when the system began source water monitoring under 40 CFR 141.701(a) shall collect samples as described in subsection (e)(7)(T)(iv)(IV) of this section and is not eligible for this credit.

(I) A system's wells with a ground water flow path of at least 25 feet are eligible to receive a 0.5 log treatment credit; a system's wells with a ground water flow path of at least 50 feet are eligible to receive a 1.0 log treatment credit. The ground water flow path shall be determined as specified in subsection (j)(13)(C)(iii)(IV) of this section.

(II) Only a system's wells in granular aquifers are eligible to receive a treatment credit. Granular aquifers are those comprised of sand, clay, silt, rock fragments, pebbles or larger particles, and minor cement. A system shall characterize in its application the aquifer at the well site to determine aquifer properties. To do so, systems shall extract a core from the aquifer and demonstrate that in at least 90 percent of the core length, grains less than 1.0 mm in diameter constitute at least 10 percent of the core material.

(III) Only a system's horizontal and vertical wells are eligible to receive a treatment credit.

(IV) For vertical wells, the ground water flow path is the measured distance from the edge of the surface water body under high flow conditions (determined by the 100 year floodplain elevation boundary or by the floodway, as defined in Federal Emergency Management Agency flood hazard maps) to the well screen. For horizontal wells, the ground water flow path is the measured distance from the bed of the river under normal flow conditions to the closest horizontal well lateral screen.

(V) Systems shall monitor each wellhead for turbidity at least once every 4 hours while the bank filtration process is in operation. If monthly average turbidity levels, based on daily maximum values in the well, exceed 1 NTU, the system shall report this result to the department in writing pursuant to subsection (h)(6)(B)(iii) of this section and shall conduct an assessment within 30 days of such exceedance to determine the cause of the high turbidity levels in the well. If the department determines that microbial removal has been compromised, the department may revoke the department's approval of the treatment credit until the system implements corrective actions approved by the department to remediate the problem. A system seeking approval of a corrective action shall submit an application to the department requesting approval of such corrective actions in accordance with subsection (t) of this section. The system shall not implement a corrective action unless the corrective action is approved by the department.

(VI) Springs and infiltration galleries are not eligible for treatment credit under subsection (j)(13)(C) of this section.

(VII) Bank filtration demonstration of performance. A system that uses bank filtration may submit an application to the department requesting approval to receive a Cryptosporidium treatment credit for the bank filtration if the system's demonstration of performance study meets the criteria in subsections (j)(13)(C)(iii)(VII)(1) and (2) of this section. Such application shall include documentation demonstrating that the system's demonstration of performance study meets the requirements of subsections (j)(13)(C)(iii)(VII)(1) and (2) of this section, and shall be submitted in accordance with subsection (t) of this section. The treatment credit, if approved by the department, may be greater than 1.0 log and may be approved by the department for bank filtration that does not meet the criteria in subsection (j)(13)(C)(iii)(I) through (V), inclusive, of this section.

(1) The study shall follow a department-approved protocol and shall involve the collection of data on the removal of Cryptosporidium or a surrogate for Cryptosporidium and related hydrogeologic and water quality parameters during the full range of operating conditions. To request approval of the system's protocol, the system shall submit an application to the department in accordance with subsection (t) of this section. The study shall not follow such protocol unless the protocol is approved by the department.

(2) The study shall include sampling both from the production well(s) and from monitoring wells that are screened and located along the shortest flow path between the surface water source and the production well(s).

(D) Treatment performance toolbox options.

(i) Combined filter performance. A system that uses conventional filtration treatment or direct filtration treatment may submit an application to the department in accordance with subsection (t) of this section requesting approval to receive an additional 0.5 log Cryptosporidium treatment credit during any month the system's combined filter effluent (CFE) turbidity is less than or equal to 0.15 NTU in at least 95 percent of the measurements. Such application shall include documentation demonstrating that the system's CFE turbidity is less than or equal to 0.15 NTU in at least 95 percent of the measurement. Turbidity shall be measured as described in 40 CFR 141.74(a) and (c), as amended from time to time.

(ii) Individual filter performance. A system that uses conventional filtration treatment or direct filtration treatment may submit an application to the department requesting approval to receive 0.5 log Cryptosporidium treatment credit, which can be in addition to the 0.5 log credit under subsection (j)(13)(D)(i) of this section, during any month the system meets the criteria in subsection (j)(13)(D)(ii)(I) through (III) of this section. Such application shall include documentation demonstrating that the system met the criteria in subsection (j)(13)(D)(ii)(I) through (III) of this section and be submitted in accordance with subsection (t) of this section. Compliance with the criteria in subsection (j)(13)(D)(ii)(I) through (III) of this section shall be based on individual filter turbidity monitoring as described in subsection (e)(7)(S)(i) of this section.

(I) The filtered water turbidity for each individual filter shall be less than or equal to 0.15 NTU in at least 95 percent of the measurements recorded each month.

(II) No individual filter may have a measured turbidity greater than 0.3 NTU in 2 consecutive measurements taken 15 minutes apart.

(III) Any system that has received a treatment credit for individual filter performance and fails to meet the requirements in subsection (j)(13)(D)(ii)(I) or (II) of this section during any month may submit an application to the department requesting a waiver from the department not to receive a treatment technique violation under subsection (j)(12)(B)(iv) of this section. Such application shall include documentation demonstrating that the system has satisfied the criteria in subsections (j)(13)(D)(ii)(III)(1) and (2) of this section and shall be submitted in accordance with subsection (t) of this section. The department may in its discretion issue such waiver if the department determines that:

(1) The failure was due to unusual and short-term circumstances that could not reasonably be prevented through optimizing treatment plant design, operation, and maintenance; and,

(2) The system has experienced no more than 2 such failures in any calendar year.

(E) Additional filtration toolbox options.

(i) Bag and cartridge filters. A system that uses individual bag or cartridge filters or bag or cartridge filters operated in series may submit an application to the department requesting approval to receive a Cryptosporidium treatment credit of up to 2 log and up to 2.5 log, respectively. To be eligible for this credit, the system's bag and cartridge filters shall meet the criteria in subsection (j)(13)(E)(i)(I) through (X) of this section. The system shall submit an application to the department in accordance with subsection (t) of this section and shall include with the application documentation demonstrating that, the results of challenge testing meet the requirements of subsections (j)(13)(E)(i)(II) through (IX) of this section, the filters treat the entire plant flow taken from a surface water or GWUDI source, and the system's bag and cartridge filters meet the following criteria:

(I) The department-approved Cryptosporidium treatment credit awarded to bag or cartridge filters shall be based on the removal efficiency demonstrated during challenge testing that is conducted according to the criteria in subsection (j)(13)(E)(i)(II) through (IX) of this section. A factor of safety equal to 1 log for individual bag or cartridge filters and 0.5 log for bag or cartridge filters in series shall be applied to challenge testing results to determine removal credit. A system that conducted challenge testing prior to January 5, 2006 may submit an application to the department requesting approval to use the results from the pre-January 5, 2006 challenge testing. Such application shall include documentation demonstrating that the prior testing was consistent with the criteria specified in subsection (j)(13)(E)(i)(II) through (IX) of this section, and shall be submitted in accordance with subsection (t) of this section. The department may only approve the use of such results if the prior testing was consistent with the criteria specified in subsection (j)(13)(E)(i)(II) through (IX) of this section.

(II) Challenge testing shall be performed on full-scale bag or cartridge filters, and the associated filter housing or pressure vessel, that are identical in material and construction to the filters and housings the system will use for removal of Cryptosporidium. Bag or cartridge filters shall be challenge tested in the same configuration that the system will use, either as individual filters or as a series configuration of filters.

(III) Challenge testing shall be conducted using Cryptosporidium or a surrogate that is removed no more efficiently than Cryptosporidium. The microorganism or surrogate used during challenge testing is referred to as the challenge particulate. The concentration of the challenge particulate shall be determined using a method capable of discreetly quantifying the specific microorganism or surrogate used in the test; gross measurements such as turbidity shall not be used.

(IV) The maximum feed water concentration that can be used during a challenge test shall be

based on the detection limit of the challenge particulate in the filtrate (i.e., filtrate detection limit) and shall be calculated using the following equation: Maximum Feed Concentration = 1 x 10^4 x (Filtrate Detection Limit)

(V) Challenge testing shall be conducted at the maximum design flow rate for the filter as specified by the manufacturer.

(VI) Each filter evaluated shall be tested for a duration sufficient to reach 100 percent of the terminal pressure drop, which establishes the maximum pressure drop under which the filter may be used to comply with the requirements of subsections (e)(7)(T), (h)(9), (i)(5), (j)(12), and (j)(13) of this section.

(VII) Removal efficiency of a filter shall be determined from the results of the challenge test and expressed in terms of log removal values using the following equation:

$LRV = LOG_{10}(C_f) - LOG_{10}(C_p)$

Where:

LRV = log removal value demonstrated during challenge testing; C_f = the feed concentration measured during the challenge test; and C_p = the filtrate concentration measured during the challenge test. In applying this equation, the same units shall be used for the feed and filtrate concentrations. If the challenge particulate is not detected in the filtrate, then the term C_p shall be set equal to the detection limit.

(VIII) Each filter tested shall be challenged with the challenge particulate during 3 periods over the filtration cycle: within 2 hours of start-up of a new filter; when the pressure drop is between 45 percent and 55 percent of the terminal pressure drop; and at the end of the cycle after the pressure drop has reached 100 percent of the terminal pressure drop. An LRV shall be calculated for each of these challenge periods for each filter tested. The LRV for the filter (LRV_{filter}) shall be assigned the value of the minimum LRV observed during the 3 challenge periods for that filter.

(IX) If fewer than 20 filters are tested, the overall removal efficiency for the filter product line shall be set equal to the lowest LRV_{filter} among the filters tested. If 20 or more filters are tested, the overall removal efficiency for the filter product line shall be set equal to the 10th percentile of the set of LRV_{filter} values for the various filters tested. The percentile is defined by (i/(n+1)) where i is the rank of n individual data points ordered lowest to highest. If necessary, the 10th percentile may be calculated using linear interpolation.

(X) If a previously tested filter is modified in a manner that could change the removal efficiency of the filter product line, the system shall conduct challenge testing to demonstrate the removal efficiency of the modified filter and shall submit an application to the department requesting approval of such modified filter. Such application shall include the reason or reasons for such request, including the results of the challenge testing, and shall be submitted in accordance with subsection (t) of this section.

(ii) Membrane filtration.

(I) A system that uses membrane filtration that meets the criteria in subsection (j)(13)(E)(ii) of this section and the definition of membrane filtration in subsection (a) of this section may submit an application to the department requesting approval to receive a Cryptosporidium treatment credit. Such application shall include documentation demonstrating that the membrane filtration meets the criteria specified in subsection (j)(13)(E)(ii) of this section and the definition of membrane filtration in subsection (a) of this section, and shall be submitted in accordance with subsection (t) of this section. The level of treatment credit the department approves is equal to the lower of the values determined under subsection (j)(13)(E)(ii)(I)(1) and (2) of this section.

(1) The removal efficiency demonstrated during challenge testing conducted under the conditions in subsection (j)(13)(E)(ii)(II) of this section.

(2) The maximum removal efficiency that can be verified through direct integrity testing used with the membrane filtration process in subsection (j)(13)(E)(ii)(III) of this section.

(II) Challenge testing. The membrane used by the system shall undergo challenge testing to evaluate removal efficiency, and the system shall report the results of challenge testing to the department for review and approval in accordance with subsection (t) of this section. Challenge testing shall be conducted according to the criteria in subsection (j)(13)(E)(ii)(II)(1) through (7) of this section. A system that conducted challenge testing prior to January 5, 2006 may submit the results from the pre-January 5, 2006 challenge testing to the department for review and approval in accordance with subsection (t) of this section. The system shall include with the system's pre-January 5, 2006 challenge testing documentation demonstrating that the prior testing was consistent with the criteria specified in subsection (j)(13)(E)(ii)(II)(1) through (7) of this section. The department shall only approve the use of such results if the prior testing was consistent with the criteria specified in subsection (j)(13)(E)(ii)(II)(1) through (7) of this section.

(1) Challenge testing shall be conducted on either a full-scale membrane module, identical in material and construction to the membrane modules used in the system's treatment facility, or a smaller-scale membrane module, identical in material and similar in construction to the full-scale module. A module is defined as the smallest component of a membrane unit in which a specific membrane surface area is housed in a device with a filtrate outlet structure.

(2) Challenge testing shall be conducted using Cryptosporidium oocysts or a surrogate that is removed no more efficiently than Cryptosporidium oocysts. The organism or surrogate used during challenge testing is referred to as the challenge particulate. The concentration of the challenge particulate, in both the feed and filtrate water, shall be determined using a method capable of discretely quantifying the specific challenge particulate used in the test; gross measurements such as turbidity shall not be used.

(3) The maximum feed water concentration that can be used during a challenge test is based on the detection limit of the challenge particulate in the filtrate and shall be determined according to the following equation: Maximum Feed Concentration = 3.16

x 10^6 x (Filtrate Detection Limit)

(4) Challenge testing shall be conducted under representative hydraulic conditions at the maximum design flux and maximum design process recovery specified by the manufacturer for the membrane module. Flux is defined as the throughput of a pressure driven membrane process expressed as flow per unit of membrane area. Recovery is defined as the volumetric percent of feed water that is converted to filtrate over the course of an operating cycle uninterrupted by events such as chemical cleaning or a solids removal process (i.e., backwashing).

(5) Removal efficiency of a membrane module shall be calculated from the challenge test results and expressed as a log removal value according to the following equation:

$LRV = LOG_{10}(C_f) \times LOG_{10}(C_p)$

Where:

LRV = log removal value demonstrated during the challenge test; C_f = the feed concentration measured during the challenge test; and C_p = the filtrate concentration measured during the challenge test. Equivalent units shall be used for the feed and filtrate concentrations. If the challenge particulate is not detected in the filtrate, the term C_p is set equal to the detection limit for the purpose of calculating the LRV. An LRV shall be calculated for each membrane module evaluated during the challenge test.

(6) The removal efficiency of a membrane filtration process demonstrated during challenge testing shall be expressed as a log removal value ($LRV_{C\text{-}Test}$). If fewer than 20 modules are tested, then $LRV_{C\text{-}Test}$ is equal to the lowest of the representative LRVs among the modules tested. If 20 or more modules are tested, then $LRV_{C\text{-}Test}$ is equal to the 10th percentile of the representative LRVs among the modules tested. The percentile is defined by (i/(n+1)) where i is the rank of n individual data points ordered lowest to highest. If necessary, the 10th percentile may be calculated using linear interpolation.

(7) The challenge test shall establish a quality control release value (QCRV) for a non-destructive performance test that demonstrates the Cryptosporidium removal capability of the membrane filtration module. This performance test shall be applied to each production membrane module used by the system that was not directly challenge tested in order to verify Cryptosporidium removal capability. Production modules that do not meet the established QCRV are not eligible for the treatment credit demonstrated during the challenge test.

(8) If a previously tested membrane is modified in a manner that could change the removal efficiency of the membrane or the applicability of the non-destructive performance test and associated QCRV, additional challenge testing to demonstrate the removal efficiency of, and determine a new QCRV for, the modified membrane shall be conducted. The system shall submit an application to the department in accordance with subsection (t) of this section requesting approval of the modified membrane.

(III) Direct integrity testing. Systems shall conduct direct integrity testing in a manner that demonstrates a removal efficiency equal to or greater than the removal credit approved by the department for the membrane filtration process and shall meet the requirements described in subsection (j)(13)(E)(ii)(III)(1) through (6), inclusive, of this section.

(1) The direct integrity test shall be independently applied to each membrane unit in service. A membrane unit is defined as a group of membrane modules that share common valving that allows the unit to be isolated from the rest of the system for the purpose of integrity testing or other maintenance.

(2) The direct integrity method shall have a resolution of 3 micrometers or less, where resolution is defined as the size of the smallest integrity breach that contributes to a response from the direct integrity test.

(3) The direct integrity test shall have a sensitivity sufficient to verify the log treatment credit approved by the department for the system's membrane filtration process, where sensitivity is defined as the maximum log removal value that can be reliably verified by a direct integrity test. Sensitivity shall be determined using the approach in either subsection (j)(13)(E)(ii)(III)(3)(A) or (B) of this section that is applicable to the type of direct integrity test the system uses:

(A) For direct integrity tests that use an applied pressure or vacuum, the direct integrity test sensitivity shall be calculated according to the following equation:

$$LRV_{DIT} = LOG_{10}(Q_p / (VCF \times Q_{breach}))$$

Where:

LRV_{DIT} = the sensitivity of the direct integrity test; Q_p = total design filtrate flow from the membrane unit; Q_{breach} = flow of water from an integrity breach associated with the smallest integrity test response that can be reliably measured, and VCF = volumetric concentration factor. The volumetric concentration factor is the ratio of the suspended solids concentration on the high pressure side of the membrane relative to that in the feed water.

(B) For direct integrity tests that use a particulate or molecular marker, the direct integrity test sensitivity shall be calculated according to the following equation:

$$LRV_{DIT} = LOG_{10}(C_f) - LOG_{10}(C_p)$$

Where:

LRV_{DIT} = the sensitivity of the direct integrity test; C_f = the typical feed concentration of the marker used in the test; and C_p = the filtrate concentration of the marker from an integral membrane unit.

(4) Systems shall establish a control limit within the sensitivity limits of the direct integrity test that is indicative of an integral membrane unit capable of meeting the removal

credit approved by the department.

(5) If the result of a direct integrity test exceeds the control limit established under subsection (j)(13)(E)(ii)(III)(4) of this section, the system shall remove the membrane unit from service. Systems shall conduct a direct integrity test to verify any repairs, and may return the membrane unit to service only if the direct integrity test is within the established control limit.

(6) Systems shall conduct direct integrity testing on each membrane unit at a frequency of not less than once each day that the membrane unit is in operation. The system may submit an application to the department requesting approval to conduct less frequent testing. Such application shall include documentation of demonstrated process reliability, the use of multiple barriers effective for Cryptosporidium or reliable process safeguards, and shall be submitted in accordance with subsection (t) of this section.

(IV) Indirect integrity monitoring. Systems shall conduct continuous indirect integrity monitoring on each membrane unit according to the criteria in subsection (j)(13)(E)(ii)(IV)(1) through (4), inclusive, of this section. Indirect integrity monitoring is defined as monitoring some aspect of filtrate water quality that is indicative of the removal of particulate matter. A system that implements continuous direct integrity testing of membrane units in accordance with the criteria in subsection (j)(13)(E)(ii)(III)(1) through (5), inclusive, of this section is not subject to the requirements for continuous indirect integrity monitoring. Systems shall submit a monthly report to the department for department approval summarizing all continuous indirect integrity monitoring results triggering direct integrity testing and the corrective action that was taken in each case. Such report shall be submitted in accordance with subsection (t) of this section.

(1) Unless the department approves an alternative parameter, continuous indirect integrity monitoring shall include continuous filtrate turbidity monitoring. A system seeking to use an alternative parameter shall submit an application to the department requesting such approval in accordance with subsection (t) of this section. The system shall not use an alternative parameter unless the alternative parameter is approved by the department.

(2) Continuous monitoring shall be conducted at a frequency of no less than once every 15 minutes.

(3) Continuous monitoring shall be separately conducted on each membrane unit.

(4) If indirect integrity monitoring includes turbidity and if the filtrate turbidity readings are above 0.15 NTU for a period greater than 15 minutes (i.e., 2 consecutive 15-minute readings above 0.15 NTU), direct integrity testing shall immediately be performed on the associated membrane unit as specified in subsections (j)(13)(E)(ii)(III)(1) through (5), inclusive, of this section.

(5) If indirect integrity monitoring includes a department-approved alternative parameter and if the alternative parameter exceeds a department-approved control limit for a period greater than 15 minutes, direct integrity testing shall immediately be performed

on the associated membrane units as specified in subsections (j)(13)(E)(ii)(III)(1) through (5), inclusive, of this section.

(iii)Second stage filtration. A system that uses a separate second stage of filtration that consists of rapid sand, dual media, GAC, or other fine grain media following granular media filtration may submit an application to the department requesting approval to receive a 0.5 log Cryptosporidium treatment credit. Such application shall include documentation demonstrating that the first stage of filtration is preceded by a coagulation step and that both filtration stages treat the entire plant flow from a surface water or GWUDI source, and shall be submitted in accordance with subsection (t) of this section. A system is not eligible for this credit if the system uses a cap, such as GAC, on the single stage of filtration. In determining whether to approve the application, the department shall conduct an assessment of the design characteristics of the filtration process.

(iv) Slow sand filtration as secondary filter. A system that uses a slow sand filtration process that follows a separate stage of filtration and both filtration stages treat entire plant flow taken from a surface water or GWUDI source and no disinfectant residual is present in the influent water to the slow sand filtration process may submit an application to the department requesting approval to receive a 2.5 log Cryptosporidium treatment credit. Such application shall include the reason or reasons for such request and shall be submitted in accordance with subsection (t) of this section. In determining whether or not to approve the application, the department shall assess the design characteristics of the filtration process. Subsection (j)(13)(E)(iv) of this section does not apply to a treatment credit approved by the department for slow sand filtration used as a primary filtration process.

(F) Inactivation toolbox components.

(i) Calculation of CT values for chlorine dioxide and ozone.

(I) CT is the product of the disinfectant contact time (T, in minutes) and disinfectant concentration (C, in milligrams per liter). Systems with a department-approved treatment credit for chlorine dioxide or ozone under subsection (j)(13)(F)(ii) or (iii) of this section shall calculate CT at least once each day, with both C and T measured during peak hourly flow as specified in 40 CFR 141.74(a) through (b), as amended from time to time.

(II) Systems with several disinfection segments in sequence may calculate CT for each segment, where a disinfection segment is defined as a treatment unit process with a measurable disinfectant residual level and a liquid volume. Under this approach, systems shall add the Cryptosporidium CT values in each segment to determine the total CT for the treatment plant.

(ii) CT values for chlorine dioxide and ozone.

(I) A system that uses chlorine dioxide that meets the chlorine dioxide CT values for the applicable water temperature, as described in subsection (j)(13)(F)(i) of this section, may submit an application to the department requesting approval to receive the corresponding Cryptosporidium treatment credit listed in Table 13-F1 of subsection (j)(13)(F)(ii)(I) of this section. Such application shall be submitted in accordance with subsection (t) of this

section.

TABLE 13-F1. CT VALUES (mg-min/l) FOR CRYTOSPORIDIUM INACTIVATION BY CHLORINE DIOXIDE.[1]

LOG CREDIT	WATER TEMPERATURE (DEGREES IN CELSIUS)										
	< 0.5	1	2	3	5	7	10	15	20	25	30
0.25	159	153	140	128	107	90	69	45	29	19	12
0.5	319	305	279	256	214	180	138	89	58	38	24
1.0	637	610	558	511	429	360	277	179	116	75	49
1.5	956	915	838	767	643	539	415	268	174	113	73
2.0	1275	1220	1117	1023	858	719	553	357	232	150	98
2.5	1594	1525	1396	1278	1072	899	691	447	289	188	122
3.0	1912	1830	1675	1534	1286	1079	830	536	347	226	147

[1] Systems may use this equation to determine log credit between the indicated values: Log credit = $(0.001506 \times (1.09116)^{Temp}) \times CT$.

(II) A system that uses ozone that meets the ozone CT values for the applicable water temperature, as described in subsection (j)(13)(F)(i) of this section, may submit an application to the department requesting approval to receive the corresponding Cryptosporidium treatment credit listed in Table 13-F2 of subsection (j)(13)(F)(ii)(II) of this section. Such application shall be submitted in accordance with subsection (t) of this section.

TABLE 13-F2. CT VALUES (mg-min/l) FOR *CRYPTOSPORIDIUM* INACTIVATION BY OZONE[1]

LOG CREDIT	WATER TEMPERATURE (DEGREES IN CELSIUS)										
	< 0.5	1	2	3	5	7	10	15	20	25	30
0.25	6.0	5.8	5.2	4.8	4.0	3.3	2.5	1.6	1.0	0.6	0.39
0.5	12	12	10	9.5	7.9	6.5	4.9	3.1	2.0	1.2	0.78
1.0	24	23	21	19	16	13	9.9	6.2	3.9	2.5	1.6
1.5	36	35	31	29	24	20	15	9.3	5.9	3.7	2.4
2.0	48	46	42	38	32	26	20	12	7.8	4.9	3.1
2.5	60	58	52	48	40	33	25	16	9.8	6.2	3.9
3.0	72	69	63	57	47	39	30	19	12	7.4	4.7

[1] Systems may use this equation to determine log credit between the indicated values: Log credit = $(0.0397 \times (1.09757)^{Temp}) \times CT$.

(iii) Ultraviolet (UV). A system that uses UV light reactors may submit an application to the department requesting approval to receive a Cryptosporidium, Giardia lamblia, and virus treatment credits. Such application shall include documentation demonstrating that the system is achieving the corresponding UV dose values shown in subsection (j)(13)(F)(iii)(I) of this section, and shall be submitted in accordance with subsection (t) of this section. Systems shall also include documentation demonstrating that the system is achieving a particular UV dose value for treatment credit based on the system's validation and monitoring of the system's UV reactors as described in subsections (j)(13)(F)(iii)(II) and (III) of this section.

(I) UV dose table. The treatment credits listed in Table 13-F3 of subsection (j)(13)(F)(iii)(I) of this section are for UV light at a wavelength of 254 nm as produced by a low pressure mercury vapor lamp. To obtain department approval to receive treatment credit for other lamp types, systems shall demonstrate in the application submitted to the department an equivalent germicidal dose through reactor validation testing, as described in section (j)(13)(F)(iii)(II) of this section. The UV dose values in Table 13-F3 of subsection (j)(13)(F)(iii)(I) of this section are only applicable to post-filter applications in systems.

TABLE 13-F3. UV DOSE TABLE FOR CRYPTOSPORIDIUM, GIARDIA LAMBLIA, AND VIRUS INACTIVATION CREDIT

LOG CREDIT	*CRYPTOSPORIDIUM* UV DOSE (MJ/CM^2)	*GIARDIA LAMBLIA* UV DOSE (MJ/CM^2)	VIRUS UV DOSE (MJ/CM^2)
0.5	1.6	1.5	39
1.0	2.5	2.1	58
1.5	3.9	3.0	79
2.0	5.8	5.2	100
2.5	8.5	7.7	121
3.0	12	11	143
3.5	15	15	163
4.0	22	22	186

(II) Reactor validation testing. Systems shall use UV reactors that have undergone validation testing to determine the operating conditions under which the reactor delivers the UV dose required in subsection (j)(13)(F)(iii)(I) of this section (i.e., validating operating conditions). These operating conditions shall include flow rate, UV intensity as measured by a UV sensor, and UV lamp status.

(1) When determining validated operating conditions, systems shall account for the following factors: UV absorbance of the water; lamp fouling and aging; measurement uncertainty of on-line sensors; UV dose distributions arising from the velocity profiles through the reactor; failure of UV lamps or other critical system components; and inlet and outlet piping or channel configurations of the UV reactor.

(2) Validation testing shall include the following: Full scale testing of a reactor that conforms uniformly to the UV reactors used by the system and inactivation of a test microorganism whose dose response characteristics have been quantified with a low pressure mercury vapor lamp.

(III) Reactor monitoring.

(1) A system shall monitor the system's UV reactors to determine if the reactors are operating within validated conditions, as determined under subsection (j)(13)(F)(iii)(II) of this section. This monitoring shall include UV intensity as measured by a UV sensor, flow rate, lamp status, and any other parameters identified by the department as necessary to determine if the system's UV reactors are operating within validated conditions. Systems shall verify the calibration of UV sensors and shall recalibrate sensors in accordance with a protocol the department approves. To request approval of a protocol, the system shall submit an application to the department requesting approval of the system's protocol in accordance with subsection (t) of this section.

(2) To receive treatment credit for UV light, systems shall treat at least 95 percent of the water delivered to the public during each month by UV reactors operating within validated conditions for the required UV dose, as described in subsection

(j)(13)(F)(iii)(I) and (II) of this section. Systems shall demonstrate compliance with this condition by the monitoring required under subsection (j)(13)(F)(iii)(III)(1) of this section.

Sec. 27. Section 19-13-B102(j) of the Regulations of Connecticut State Agencies is amended by adding subdivision (14) as follows:

(NEW) (14) Corrective action treatment techniques.

(A) The treatment technique requirements in subsection (j)(14) of this section shall be met by ground water systems when a ground water source sample or samples collected under subsection (e)(12)(C)(iii) of this section is fecal indicator-positive. In addition, the treatment technique requirements of this section shall be met by ground water systems when a ground water source sample collected under subsection (e)(12)(C)(ii) or (e)(12)(C)(iv) of this section is fecal indicator-positive, if the department in the department's discretion determines that such system shall meet such requirements.

(i) Corrective action alternatives. Ground water systems that meet the conditions of subsection (j)(14)(A) of this section shall implement one or more of the following corrective actions:

(I) Correct all significant deficiencies;

(II) Provide an alternate source of water;

(III) Eliminate the source of contamination; or,

(IV) Provide treatment that reliably achieves at least 4 log (99.99 percent) treatment of viruses using inactivation, removal, or a department-approved combination of 4 log virus inactivation and removal before or at the first consumer for the ground water source.

(ii) Unless the department directs the system to implement a specific corrective action, the ground water system shall consult with the department regarding the appropriate corrective action within 30 days of receiving written notice from a laboratory that a ground water source sample or samples collected under subsection (e)(12)(C)(iii) of this section was found to be fecal indicator-positive or direction in writing from the department that a fecal indicator-positive sample collected under subsection (e)(12)(C)(ii) or (e)(12)(C)(iv) of this section requires corrective action.

(iii) Within 60 days of receiving direction in writing from the department regarding implementation of a specific corrective action, written notice from the laboratory regarding a fecal indicator-positive sample or samples, collected under subsection (e)(12)(C)(iii) of this section, or direction in writing from the department that a fecal indicator-positive sample, collected under subsection (e)(12)(C)(ii) or (e)(12)(C)(iv) of this section, requires corrective action, the ground water system shall submit an application to the department requesting approval of the corrective action the ground water system will take to address the fecal indicator-positive sample or samples, and include a proposed schedule for completing that action. Such application shall be submitted in accordance with subsection (t) of this section. If the department approves such application, such application shall constitute the department-

approved corrective action plan as referenced in subsection (j)(14)(A)(iv) of this section.

(iv) Within 120 days (or earlier if directed by the department) of receiving direction in writing from the department regarding implementation of a specific corrective action, written notice from the laboratory regarding a fecal indicator-positive sample or samples, collected under subsection (e)(12)(C)(iii) of this section, or direction in writing from the department that a fecal indicator-positive sample, collected under subsection (e)(12)(C)(ii) or (e)(12)(C)(iv) of this section, requires corrective action, the ground water system shall either:

(I) Have completed corrective action in accordance with the department-approved corrective action plan and schedule, including department specified interim measures, if any; or,

(II) Be in compliance with a department-approved corrective action plan and schedule, subject to the conditions specified in subsections (j)(14)(A)(iv)(II)(1) and (2), inclusive, of this section.

(1) Any subsequent modifications to a department-approved corrective action plan and schedule shall also be approved by the department in the department's discretion. The ground water system shall submit an application to the department requesting approval of the subsequent modifications to a department-approved corrective action plan and schedule in accordance with subsection (t) of this section.

(2) If the department requires the ground water system to implement specific interim measures for protection of public health pending department approval of the corrective action plan and schedule or pending completion of the corrective action plan, the system shall comply with these interim measures as well as any schedule specified by the department. For purposes of subsection (j)(14) of this section, interim measures include, but are not limited to the following:

(A) Provision of an alternate source of water;

(B) Notice to consumers to boil all water to be used for consumption;

(C) Temporary disinfection of water in a manner prescribed by the department; and,

(D) Inactivation of a water source or sources.

(B) Compliance monitoring.

(i) Existing ground water sources.

(I) A ground water system seeking approval from the department that the ground water system is not subject to the source water monitoring requirements of subsection (e)(12) of this section because the system provides at least 4 log treatment of viruses using inactivation, removal, or a department-approved combination of 4 log virus inactivation and removal before or at the first consumer for a specified ground water source or sources shall submit to the department an application requesting such approval. Such application shall include documentation demonstrating that the ground water system provides at least 4 log

treatment of viruses using inactivation, removal, or a department-approved combination of 4 log virus inactivation and removal before or at the first consumer for a specified ground water source or sources, including, but not limited to, engineering, operational, or other information that the department may require to enable the department to evaluate the ground water system's 4 log treatment of viruses, and shall be submitted in accordance with subsection (t) of this section. If the department approves the ground water system's application, the ground water system shall begin compliance monitoring of the specified ground water source or sources in accordance with subsection (j)(14)(B)(iii) of this section. The department's approval shall state the required minimum RDC, or the required minimum RDC and required minimum CT value, the ground water system shall maintain every day the ground water system serves water from the ground water source to the public. If a ground water system maintains the RDC at or above the ground water system's required minimum RDC, no CT value calculation is required. If a ground water system fails to maintain the RDC at or above the ground water system's required minimum RDC, the ground water system may submit an application to the department under to subsections (j)(14)(B)(iii)(I)(1) or (2) of this section requesting a determination as to whether the ground water system is providing at least 4 log treatment of viruses using inactivation, removal, or a department-approved combination of 4 log virus inactivation and removal.

(II) The department may in the department's discretion require a ground water system that subsequently discontinues the department-approved 4 log treatment of viruses using inactivation, removal, or a department-approved combination of 4 log virus inactivation and removal before or at the first consumer for the specified ground water source to conduct assessment source water monitoring under subsection (e)(12)(D)(ii) of this section. A ground water system that discontinues 4 log treatment of viruses shall comply with the source water monitoring requirements in subsection (e)(12)(C) of this section and analytical methods requirements in subsection (e)(12)(E) of this section.

(ii) New ground water sources. A ground water system that places a new ground water source in service that is not subject to the source water monitoring requirements of subsection (e)(12) of this section because the ground water system provides at least 4 log treatment of viruses using inactivation, removal, or a department-approved combination of 4 log virus inactivation and removal before or at the first consumer for the ground water source shall comply with the following requirements:

(I) The ground water system shall submit an application to the department requesting approval from the department that the ground water system is not subject to the source water monitoring requirements of subsection (e)(12) of this section because the ground water system provides at least 4 log treatment of viruses using inactivation, removal, or a department-approved combination of 4 log virus inactivation and removal before or at the first consumer for the specified ground water source. Such application shall include documentation demonstrating that the system provides at least 4 log treatment of viruses using inactivation, removal, or a department-approved combination of 4 log virus inactivation and removal before or at the first consumer for a specified ground water source or sources, including, but not limited to, engineering, operational, or other information that the department may require to enable the department to evaluate the ground water system's 4 log treatment of viruses, and shall be submitted in accordance with subsection (t) of this section. The department's approval shall state the required

minimum RDC, or the required minimum RDC and required minimum CT value, the ground water system shall maintain every day the ground water system serves water from the ground water source to the public. If a ground water system maintains the RDC at or above the ground water system's required minimum RDC, no CT value calculation is required. If a ground water system fails to maintain the RDC at or above the ground water system's required minimum RDC, the ground water system may submit an application to the department pursuant to subsections (j)(14)(B)(iii)(I)(1) or (2) of this section requesting a determination as to whether the ground water system is providing at least 4 log treatment of viruses using inactivation, removal, or a department-approved combination of 4 log virus inactivation and removal.

(II) If the department approves the ground water system's application submitted under subsection (j)(14)(B)(ii)(I) of this section, the ground water system shall conduct compliance monitoring in accordance with subsection (j)(14)(B)(iii) of this section within 30 days of placing the ground water source in service.

(III) The department may in the department's discretion require a ground water system that subsequently discontinues the department-approved 4 log treatment of viruses using inactivation, removal, or a department approved combination of 4 log virus inactivation and removal before or at the first consumer for a ground water source to conduct assessment source water monitoring under subsection (e)(12)(D)(ii) of this section. A ground water system that discontinues 4 log treatment of viruses is subject to the triggered source water monitoring requirements of subsection (e)(12)(C) of this section and analytical methods requirements in subsection (e)(12)(E) of this section.

(iii) Monitoring requirements. A ground water system subject to the requirements of subsections (e)(7)(E)(iv)(II)(4), (j)(14)(A), (j)(14)(B)(i), or (j)(14)(B)(ii) of this section shall monitor the effectiveness and reliability of treatment for that ground water source before or at the first consumer as follows in subsections (j)(14)(B)(iii)(I) through (III) of this section:

(I) Chemical disinfection.

(1) Ground water systems serving greater than 3,300 people. A ground water system that serves greater than 3,300 people shall submit an application to the department requesting approval of the location at which the ground water system will monitor the RDC and CT value, if the department has stated a required minimum CT value. Such application shall be submitted in accordance with subsection (t) of this section. The ground water system shall continuously monitor the RDC using analytical methods specified in 40 CFR 141.74(a)(2), as amended from time to time, at the location approved by the department and shall record the lowest RDC on each day that water from the ground water source is served to the public. If the lowest daily RDC is below the ground water system's required minimum RDC, but the ground water system's CT value is at or above the ground water system's required minimum CT value, the ground water system may submit an application to the department requesting a determination whether the ground water system nevertheless is providing at least 4 log treatment of viruses using inactivation, removal, or a department-approved combination of 4 log virus inactivation and removal. Such application shall include documentation demonstrating that the ground water system's lowest daily CT value is at or above the

ground water system's required minimum CT value, and shall be submitted in accordance with subsection (t) of this section. If there is a failure in the continuous monitoring equipment, the ground water system shall conduct grab sampling every 4 hours until the continuous monitoring equipment is returned to service. The ground water system shall resume continuous RDC monitoring within 14 days of the failure of the continuous monitoring equipment.

(2) Ground water systems serving 3,300 or fewer people. A ground water system that serves 3,300 or fewer people shall submit an application to the department requesting approval of the location at which the ground water system will monitor the RDC and CT value, if the department has stated a required minimum CT value. Such application shall be submitted in accordance with subsection (t) of this section. The ground water system shall monitor the RDC using analytical methods specified in 40 CFR 141.74(a)(2), as amended from time to time, at the location approved by the department and shall record the lowest RDC on each day that water from the ground water source is served to the public. If any daily grab sample measurement falls below the system's required minimum RDC, the ground water system shall take follow-up samples every 4 hours until the RDC is restored to the required level. Alternatively, a ground water system that serves 3,300 or fewer people may monitor continuously and meet the requirements of subsection (j)(14)(B)(iii)(I)(1) of this section. If the lowest daily RDC is below the ground water system's required minimum RDC, but the ground water system's CT value is at or above the ground water system's required minimum CT value, the ground water system may submit an application to the department requesting a determination whether the ground water system nevertheless is providing at least 4 log treatment of viruses using inactivation, removal, or a department-approved combination of 4 log virus inactivation and removal. Such application shall include documentation demonstrating that the ground water system's lowest daily CT value is at or above the ground water system's required minimum CT value, and shall be submitted in accordance with subsection (t) of this section.

(II) Membrane filtration. A ground water system that uses membrane filtration to meet the requirements of subsections (e)(7)(E)(iv)(II)(4), (e)(12) and (j)(14) of this section shall monitor the membrane filtration process in accordance with all department-approved monitoring requirements and shall operate the membrane filtration in accordance with all department-approved compliance requirements. To request approval of the system's monitoring and compliance requirements, a system shall submit an application to the department requesting such approval in accordance with subsection (t) of this section. Such application shall include documentation demonstrating that the system's monitoring and compliance requirements will measure the effectiveness of the membrane filtration and the membrane filtration process to achieve at least 4 log removal of viruses. A ground water system that uses membrane filtration is in compliance with the requirement to achieve at least 4 log removal of viruses when the membrane is in compliance with the following:

(1) The membrane has an absolute MWCO, or an alternate parameter that describes the exclusion characteristics of the membrane, that can reliably achieve at least 4 log removal of viruses;

(2) The membrane process is operated in accordance with department-approved compliance requirements; and,

(3) The integrity of the membrane is intact.

(III) Alternative treatment. To request approval of an alternative treatment to meet the requirements of subsections (e)(7)(E)(iv)(II)(4), (e)(12) and (j)(14) of this section by providing at least 4 log treatment of viruses using inactivation, removal, or a department-approved combination of 4 log virus inactivation and removal before or at the first consumers, a ground water system shall submit an application to the department requesting such approval in accordance with subsection (t) of this section. Such application shall include documentation demonstrating that the combination of inactivation and removal provides at least 4 log treatment of viruses before or at the first consumer. A ground water system that uses a department-approved alternative treatment shall comply with the following requirements:

(1) Monitor the alternative treatment in accordance with all department-approved monitoring requirements. To request approval of the system's monitoring requirements, a system shall submit an application to the department requesting such approval in accordance with subsection (t) of this section. Such application shall include documentation demonstrating that the system's monitoring requirements will measure the effectiveness of the department-approved combination of 4 log inactivation and removal to achieve at least 4 log removal of viruses; and,

(2) Operate the alternative treatment in accordance with all department-approved compliance requirements. To request approval of the system's compliance requirements, a system shall submit an application to the department requesting such approval in accordance with subsection (t) of this section. Such application shall include documentation demonstrating that the system's compliance requirements will maintain and measure the effectiveness of the department-approved combination of 4 log inactivation and removal to achieve at least 4 log treatment of viruses.

(C) Discontinuing treatment.

(i) A ground water system may discontinue a department-approved 4 log treatment of viruses using inactivation, removal, or a combination of 4 log virus inactivation and removal before or at the first consumer for a ground water source if the system satisfies one of the following criteria in subsection (j)(14)(C)(i)(I) through (IV) of this section and the system receives approval from the department to do so. A system seeking such approval shall submit an application to the department requesting approval to discontinue the system's department-approved 4 log treatment of viruses using inactivation, removal, or a combination of 4 log virus inactivation and removal before or at the first consumer for a ground water source. Such application shall include documentation demonstrating that the department-approved 4 log treatment of viruses is no longer necessary for that ground water source because the system satisfies at least one of the four criteria in subsection (j)(14)(C)(i)(I) through (IV) of this section, and shall be submitted in accordance with subsection (t) of this section.

(I) The system abandoned the ground water source for which the department-approved 4 log treatment was required;

(II) The system removed the source or sources of contamination for which the department-approved 4 log treatment was required;

(III) The system corrected the significant deficiency or deficiencies for which the department-approved 4 log treatment was required; or,

(IV) Other reason why the department-approved 4 log treatment of viruses is no longer needed for the ground water source.

(ii) A system that discontinues a department-approved 4 log treatment of viruses is subject to the triggered source water monitoring requirements of subsection (e)(12)(C) of this section and analytical methods requirements in subsection (e)(12)(E) of this section.

(iii) The department may in the department's discretion require a system that subsequently discontinues the department-approved 4 log treatment of viruses using inactivation, removal, or a department approved combination of 4 log virus inactivation and removal before or at the first consumer for a ground water source to conduct assessment source water monitoring under subsection (e)(12)(D)(ii) of this section.

(D) Failure to meet the monitoring requirements of subsection (j)(14)(B) of this section is a monitoring violation and requires the ground water system to provide public notification under subsection (i)(3) of this section.

(E) Treatment technique violations.

(i) Unless the department invalidates a fecal indicator-positive ground water source sample under subsection (e)(12)(F) of this section, a system is in violation of the treatment technique requirement if, within 120 days (or earlier if required by the department) of meeting the conditions of subsection (j)(14)(A) of this section, the system:

(I) Does not complete corrective action in accordance with the department-approved corrective action plan and schedule, including department specified interim measures, if any; or

(II) Is not in compliance with a department-approved corrective action plan and schedule.

(ii) A ground water system subject to the requirements of subsection (j)(14)(B)(iii) of this section that fails to maintain at least 4 log treatment of viruses using inactivation, removal, or a department-approved combination of 4 log virus inactivation and removal before or at the first consumer for a ground water source is in violation of the treatment technique requirement if the failure is not corrected within 4 hours of determining the system is not maintaining at least 4 log treatment of viruses before or at the first consumer.

(iii) Systems shall give public notification under subsection (i)(2) of this section for the treatment technique violations specified in subsections (j)(14)(E)(i) and (ii) of this section.

Sec. 28. Section 19-13-B102(*l*) of the Regulations of Connecticut State Agencies is amended to read as follows:

(1) Any owner [or operator] of a [public water] system [subject to the provisions of this section] shall retain on its premises or at a convenient location near its premises the following records[,] in subsection (*l*)(1)(A) through (U) of this section. All such records maintained by an owner of a system shall be available for inspection by the department immediately upon the request of the department:

(A) Records of all [bacteriological] microbiological analyses and turbidity analyses made pursuant to this section shall be kept for not less than [five (5)] 5 years. Records of chemical analyses shall be kept for not less than [ten (10)] 10 years. Actual laboratory reports may be kept; or data may be transferred to tabular summaries, provided that the following information is included:

(i) [the] The date, place and time of sampling, and the name of the person who collected the sample;

(ii) [identification] Identification of the sample as to whether it was a routine distribution system sample, check sample, raw or processed water sample or other special purpose sample;

(iii) [date] Date of analysis;

(iv) [laboratory] Laboratory and person responsible for performing analysis;

(v) [the] The analytical technique/method used; and

(vi)[the] The results of the analysis.

(B) Records of action taken by the system to correct violations of primary drinking water regulations[,] shall be kept for a period not less than [three (3)] 3 years after the last action taken with respect to the particular violation involved.

(C) Copies of any written reports, summaries or communications relating to sanitary surveys of the system conducted by the system itself, by a private consultant, or by any local, state or federal agency, shall be kept for a period not less than [ten (10)] 10 years after completion of the sanitary survey involved.

(D) Records concerning a variance or exemption granted to the system shall be kept for a period ending not less than [five (5)] 5 years following the expiration of such variance or exemption.

(E) Accurate and up-to-date maps and records showing the location of all mains, valves, hydrants, service connections, and other facilities including pumps, tanks and treatment plants shall be maintained for each [community water system] CWS. An integrated map of the system showing supply, including ground water, surface water and GWUDI sources, as well as any water company land associated with such sources, treatment, pumping and storage facilities and major mains shall be filed with the department and updated at least every [five (5)] 5 years.

(F) Records of each complaint received about water quality or adequacy shall be retained for each [community water system and made available for inspection by the department on request] CWS.

A record of the original complaint shall be kept for a period of [three (3)] 3 years subsequent to the final resolution of the complaint.

(G) Recordkeeping requirements for lead and copper. Any [water system] CWS or NTNC subject to the requirements of (e)(7)(K), (e)(8) through (e)(10), (h)(5), (i)(6), and (j)(7) through (j)(10) of this section shall retain on its premises original records of all sampling data and analyses, reports, surveys, letters, evaluations, schedules, department determinations and any other information required by subsections [(e)(7)(L),(e)(8)] (e)(7)(K), (e)(8) through (e)(10), (h)(5) (i)(6), and (j)(7) through (j)(10) of this section. Each [water system] CWS and NTNC shall retain the records required by [this] subsection (*l*)(1)(G) of this section for [no fewer] not less than [twelve (12)] 12 years.

(H) Records of any reports, test results, correspondence or other records collected as part of the system's cross connection control program, pursuant to subsection (f) of this section, shall be kept for [a period of] not less than [five (5)] 5 years.

(I) [The system shall keep a] A copy of the consumer confidence report shall be kept for [no] not less than [five (5)] 5 years.

(J) [The system shall keep a] A copy of the public records for combined and individual filter turbidity measurements, as required in subsection (e)(7)(S) of this section, shall be kept for not less than [three (3)] 3 years.

(K) [The system shall keep a] A copy of the public notice and certification of compliance pursuant to [section 19-13-B102] subsection (i)(8) of [the Regulations of Connecticut State Agencies] this section shall be kept for [no] not less than [three (3)] 3 years.

(L) A complete copy of the system's department-approved standard monitoring plan, including any department modification of the system's standard monitoring plan, shall be kept for as long as the system is required to retain the system's IDSE report under subsection (*l*)(1)(O) of this section.

(M) A complete copy of the system's department-approved system specific study plan, including any department modification of the system's system specific study plan, shall be kept for as long as the system is required to retain the system's IDSE report under subsection (*l*)(1)(O) of this section.

(N) A complete copy of the system's department-approved 40/30 certification shall be kept for 10 years after the date that the system submitted the system's certification. The system shall make the certification, all data upon which the certification is based, and any department notification available for review by the department and the public.

(O) A complete copy of the system's department-approved IDSE report shall be kept for 10 years after the date that the system submitted the system's IDSE report. If the department modified the subsection (e)(11)(C) of this section monitoring requirements that the system recommended in the system's IDSE report or if the department approved alternative monitoring locations, the system shall keep a copy of the department's approval on file for 10 years after the date of the department's approval. The system shall make the IDSE report and any department approval available for review by the department and the public.

(P) Copies of any monitoring plans and monitoring results under subsection (e)(11)(C) of this section shall be kept for the same period of time as the records of analyses taken under the plan are required to be kept under subsection (*l*)(1)(A) of this section, except as specified elsewhere in subsection (*l*)(1) of this section. The system shall make the monitoring plans and the monitoring results under subsection (e)(11)(C) of this section available for review by the department and the public.

(Q) Copies of monitoring plans developed pursuant to this section shall be kept for the same period of time as the records of analyses taken under the plan are required to be kept under subsection (*l*)(1)(A) of this section, except as specified elsewhere in this section.

(R) Results from the initial round of source water monitoring under 40 CFR 141.701(a), as amended from time to time, and the second round of source water monitoring under subsection (e)(7)(T)(ii)(I) of this section shall be kept for a period of not less than 3 years after bin classification under subsection (j)(12)(A) of this section for the particular round of monitoring.

(S) A department-approved application in which the system requested approval of an exemption from source water monitoring because the system met the criteria in subsection (e)(7)(T)(ii)(III) of this section shall be kept for not less than 3 years.

(T) Results of treatment monitoring associated with microbial toolbox options under subsection (j)(13)(B) through (F), inclusive, of this section for shall be kept for not less than 3 years.

(U) In addition to the requirements of subsection (*l*)(1)(A) through (T) of this section, a ground water system regulated under subsection (e)(7)(E), (e)(12) and (j)(14) of this section shall retain on its premises or at a convenient location near its premises the following records:

(i) Documentation of corrective actions shall be kept for a period of 10 years.

(ii) Documentation of notice to the public as required under subsection (i)(5)(F) of this section shall be kept for not less than 3 years.

(iii) Records of decisions under subsection (e)(12)(C)(v)(II) of this section and records of invalidation of fecal indicator-positive ground water source samples under subsection (e)(12)(F) of this section shall be kept for not less than 5 years.

(iv) For consecutive systems, documentation of notification provided to the wholesale system(s) under subsection (e)(12)(C)(iv)(I) of this section of total-coliform-positive samples that were not invalidated under subsection (e)(7)(F) of this section shall be kept for not less than 5 years.

(v) For systems, including wholesale systems, that are required to perform compliance monitoring under subsection (j)(14)(B) of this section, the following record-keeping requirements shall apply:

(I) Records of the system's required minimum RDC stated in the department's approval issued pursuant to subsection (j)(14)(B)(i) or (ii) of this section and the required minimum CT value, if the department stated a required minimum CT value in the department's approval

issued pursuant to subsection (j)(14)(B)(i) or (ii) of this section, shall be kept for not less than 10 years.

(II) Records of the lowest daily RDC, and records of the date and duration of any failure to maintain the system's required minimum RDC or the system's required minimum CT value, or both, for a period of more than 4 hours shall be kept for 5 years.

(III) Records of department-approved compliance requirements for a department-approved alternative treatment and records of the date and duration of any failure to meet the membrane operating, membrane integrity, or alternative treatment operating requirements for more than 4 hours shall be kept for a period of not less than 5 years.

(2) [Records of each of the following decisions shall be retained by the department for five (5) years:

(A) Any decision to waive the twenty four (24) hour time limit for collecting repeat samples after a total coliform-positive routine sample; and

(B) Any decision to invalidate a total coliform-positive sample.

(3)] Records of [each of the following] decisions shall be [retained] maintained by the department in such a manner so that each system's current status may be determined by the department:

(A) Any decision under subsection (e)(7)(A) of this section to reduce the [total coliform and] physical parameters monitoring frequency for a [community water system] CWS serving [one thousand (1,000)] 1,000 persons or fewer to less than once per month. [;]

(B) Any decision under subsection (e)(7)(B)(i) of this section to reduce the [total coliform and] physical parameter monitoring frequency for a non-community water system using only ground water and serving [one thousand (1,000)] 1,000 persons or fewer to less than once per quarter. [;]

[(C) Any decision to waive the twenty four (24) hour limit for taking a total coliform sample near the first service connection when the source water turbidity level exceeds one (1) NTU pursuant to section 19-13- B102(e)(7)(H)(i) of the Regulations of Connecticut State Agencies;

(D) Any decision that a non-community water system is using only protected and disinfected groundwater and therefore may reduce the frequency of its sanitary survey to less than once every five (5) years;

(E) Any decision made on records of consultation by a system concerning the modification to a disinfection practice under 40 CFR 141.172 (c), or 40 CFR 141.542, as amended January 14, 2002, with respect to disinfection benchmarking;

(F) Any decision allowing a system to use an alternative filtration technology in accordance with section 19-13-B102(j)(4)(D) of the Regulations of Connecticut State Agencies; and

(G) Any decision made on records for systems required to do a filter self assessment, comprehensive performance evaluation, or composite correction program

(4) The department shall maintain a copy of the consumer confidence reports required pursuant to section 19-13-B102(i)(10)(F) of the Regulations of Connecticut State Agencies for a period of one (1) year and the certification required pursuant to section 19-13-B102(i)(10)(G) for a period of five (5) years.

(5) The department shall retain the following records for the duration indicated:

(A) Records for turbidity measurements and other information, which are required to be reported in accordance with section 19-13-B102(h)(6)(B)(i) of the Regulations of Connecticut State Agencies, shall be retained for not less than one (1) year; and

(B) Records for disinfection residual and other parameters necessary to document isinfection effectiveness, which are required to be reported in accordance with section 19-13-B102(h)(6)(B)(ii) of the Regulations of Connecticut State Agencies, shall be retained for not less than one (1) year.

(6) The department shall maintain a copy of the public notice and the certification of compliance required to be submitted pursuant to section 19- 13-B102(i)(8) for a period of three (3) years.]

Sec. 29. Section 19-13-B102(n) of the Regulations of Connecticut State Agencies is amended to read as follows:

(n) **Reservoir, ground water and water use monitoring.**

(1) Meters shall be provided at all sources of water supply for [community water] systems so that the amount of water delivered to the distribution system can be measured.

(2) Representative weekly readings of instantaneous flow rate and total quantity of water delivered over the previous week shall be taken, recorded and retained for reference. Such records shall be submitted to the department upon request. More frequent readings shall be taken upon request of the department.

(3) Any water company maintaining a reservoir shall submit records of reservoir status to the department according to a schedule specified by the department which shall include at least weekly measurements of water elevation, instantaneous usable storage capacity, reservoir withdrawals, and amount of precipitation.

(4) Any water company with a ground water source in an unconsolidated unconfined aquifer shall submit records of [groundwater] ground water status to the department according to a schedule specified by the department which shall include at least weekly measurements of instantaneous pumping rates and ground water elevations. A system of observation wells, approved by the department, shall be maintained to provide sufficient information on ground water elevations and ground water quality. To request such approval, the water company shall submit an application to the department requesting approval of a system of observation wells in accordance with subsection (t) of this section.

(5) Any water company serving more than 1,000 people or 250 service connections, and any other water company notified by the department, shall submit to the department on forms provided by the department, according to a schedule specified by the department, records of water use which shall include at least weekly measurements of the volume of water withdrawn from each source and for the total system. The volume of water bought from or sold to another water company, and the type of restrictions, if any, imposed on water use and at least annual records of the volume of water used and average number of [customers. Forms] consumers shall be submitted to the department on forms provided by the department [shall be utilized when available].

Sec. 30. Section 19-13-B102(r) of the Regulations of Connecticut State Agencies is amended to read as follows:

(r) All [customers] consumers served by a [community water system] CWS shall be notified at least annually of an emergency telephone number which is continuously available for personal contact and reporting service problems. A crew shall be available to deal with emergencies within each [community water system] CWS or a working arrangement or contract shall exist with others, such as pump installers, pipe layers, electricians or another [water] system for such coverage. Sufficient spare parts and clean up and disinfectant equipment shall be available. On or before January 1 of each year, or upon any change, the continuously available emergency telephone number and other methods of contact shall be reported in writing to the department.

Sec. 31. Section 19-13-B102 of the Regulations of Connecticut State Agencies is amended by adding subsection (t) as follows:

(NEW) (t) Department approval of applications, plans, waivers, requests and other documents.

(1) Unless otherwise specified, if an application, plan, request, waiver or other document requires department approval under any subsection of this section, the person seeking approval of such application, plan, request, waiver or other document shall sign the document under oath and file the document in writing with the department. The application, plan, request, waiver or other document requiring approval shall contain a notice that false statements made therein are punishable in accordance with section 53a-157b of the Connecticut General Statutes. Such application, plan, request, waiver or other document shall set forth the reason or reasons for the application, plan, request, waiver, or other document requiring approval and grounds to support the granting of such application, plan, request, waiver or other document by the department. For purposes of subsection (t) of this section, the term "person" means the person who is authorized to bind and act on behalf of the owner of the system.

(2) Unless otherwise specified, the department shall issue a decision in writing either approving or disapproving such application, plan, request, waiver or other document, in whole or in part. The department may in the department's discretion determine that the department requires additional information to either approve or disapprove such document. If the department determines that such additional information is required, the system shall provide the requested information to the department on or before the date specified by the department in the department's written request for additional information. Failure of the system to provide the requested additional information on or before the date specified by the department in the department's written request shall result in the system's application, plan, request, waiver or other document requiring approval to be denied by the department. Any department approval, in whole or in part, may contain such conditions or orders as the department deems appropriate.

Sec. 32. Section 19-13-B102 of the Regulations of Connecticut State Agencies is amended by adding subsection (u) as follows:

(NEW) (u) Responsibility of the person or entity that owns or controls the public water system. The person or entity that owns or controls the system shall be responsible for complying with the requirements of this section.

Sec. 33. Section 19-13-B102 of the Regulations of Connecticut State Agencies is amended by adding subsection (v) as follows:

(NEW) (v) Sampling taps for source water monitoring.

(1) A sampling tap or taps for sampling ground water source samples shall be installed such that water can be sampled directly from each individual source of supply.

(2) The sampling tap or taps for sampling ground water and surface water sources shall be located before any treatment, and in a location that excludes water from storage tanks and the distribution system.

(3) The sampling tap or taps for sampling ground water sources shall be pointed downward and free of any obstructions, and shall allow easy access and sufficient clearance for sampling containers.

(4) Any sampling tap or taps installed for the purposes of sampling a ground water source shall be of the smooth-ended, threadless type.

(Statement of Purpose page)

Statement of Purpose:

Statement of Purpose: (A) The purpose of this amendment to the regulation, which is specific to disinfection byproducts, enhanced filtration, ground water protection and the lead and copper requirements in public drinking water (B) The regulations conform with the new federal requirements and maintain primacy for the State implementation and enforcement of the federal safe drinking water act (SDWA) (C) Amendments were made to section 19-13-B102 of the Regulations of Connecticut State Agencies.